LOUISIANA Conservationist

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Comments

Joe L. Herring, Secretary

The Department of Wildlife and Fisheries's responsibility for protection and management of Louisiana's wildlife resources and habitats includes not only game and commercial species, but non-game species as well. That final category is the largest, encompassing all species not subject to recreational or commercial and including everything from the lowly Shovel-headed garden worm to the majestic Bald Eagle. It is also the most rapidly expanding responsibility facing the department.

As I have noted before, when the department was responsible primarily for enhancing game bird and animal populations and opportunities for trappers and commercial fishermen; and when substantial royalty revenues flowed from oil and gas operations on department lands, we felt a responsibility to develop specific programs to benefit "non-game" species and provide increased opportunities for "non-consumptive" outdoor loving men, women and children. These include bird watchers, artists, photographers, campers and hikers. The effort began with establishment of a "non-game" section within our Wildlife Division. We later rescued the Natural Heritage program when it was discarded by another agency. Little did we realize we were opening Pandora's Box.

The ranks of "environmentalists" swelled in the 1970s as many Americans "discovered" the century-old conservation movement. The converts demanded varied non-traditional programs. In short order, the department was charged with Scenic Rivers preservation and enhancement, protection of rare, threatened and endangered species, and a host of other obligations.

Invariably, the new responsibilities came without funding to implement or sustain them. This, despite the fact that the total economic impact of this department's activities on Louisiana's economy is estimated at some **$2 billion annually.** This, at a time when royalty income was plummeting and staff resources were taxed to the limit.

The public support the department has received with this array of new programs has been disappointing. Hunters, trappers and commercial and sport fishermen, the traditional supporters of the conservation movement, have remained steadfast. Unfortunately, that very segment of society which benefits most directly has been mute.

I must assume this is the result of a lack of communication on our part. As new programs demanded larger shares of available funds, our Information and Education efforts have been hurtfully reduced. Our Education Section has been withdrawn from schools, civic clubs and fairs, and restricted to activities funded by federal monies. Our Information Section faced staff reductions and the discontinuance of our highly popular weekly television program. The remaining staff struggles to maintain publication of the *Louisiana Conservationist*, produce necessary news releases and publish regulation booklets mandated by law. Rebuilding our Information and Education effort has become a critical necessity.

A resource management program is only as strong as the public's perception of and support for that program. Perhaps the lack of support we have received from non-consumptive resource users and the general public is the result of our failure to adequately communicate the importance of "their" programs and their financial and political support. You will see an increased effort in this arena. As the department approaches one of the most critical turning points in our history, your active and outspoken support will determine the very survival of the resource management plans that you, the people, have demanded.

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LOUISIANA
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LDWF file photo

LOUISIANA'S VANISHING COAST PART III: Processes and Problems

BY PHILIP BOWMAN, DR. LEN BAHR & PAUL COREIL

Coastal wetlands loss in Louisiana was identified as a major problem more than two decades ago. Today, wetlands are disappearing at the rate of more than 25 square miles, or 16,000 acres, each year. While the rate of coastal wetlands loss has declined somewhat from that observed in the mid 1970s, Louisiana is still experiencing more than 80 percent of the total annual wetlands loss in the United States. To understand why Louisiana is losing its coastal wetlands, we must first understand how coastal Louisiana was built and how man has influenced the changes that have taken place.

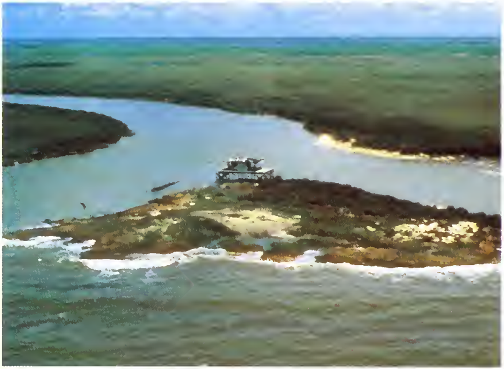
One of the greatest rivers in the world, the Mississippi, runs through Louisiana and terminates where the state meets the Gulf of Mexico. It was the Mississippi River, with its load of rich sediment eroded from nearly 40 percent of the continental United States and Canada, that built coastal Louisiana. During the last 7,000 years or so, while sea level was relative stable, the river's sediment was deposited in the shallow waters off coastal Louisiana and formed a series of delta lobes. About every 1,000 years, the river changed its course and formed a new delta lobe. In fact, had it not been for man's efforts, the Mississippi River would have changed its course in 1973 and would now be flowing down the Atchafalaya River.

As the delta system grew, two distinct areas were created; the deltaic plain in eastern Louisiana (the area from the Chandeleur Islands to Vermilion Bay) and the chenier plain (the area from Vermilion Bay to the Sabine River). The deltaic plain was formed by the direct deposit of sediments in the shallow waters of the Louisiana coast, while the chenier plain was formed as the various delta lobes eroded, producing sediments that were carried to the west by the longshore currents and redeposited along western Louisiana beaches. As new marsh formed south of the beach berms, the isolated beach would develop into what we now call a "chenier" or oak ridge. The dominant live oak trees on the cheniers were primarily seeded by birds in the region. Unique to western Louisiana, the chenier plain is characterized by long sandy ridges (cheniers) that generally run parallel to the Gulf of Mexico. When the River would finally shift back to the east, the sediment source would be lost and a new active beach would form.

When the river changed its course in the past, it would begin to form a new delta and during the same time the old delta would begin to deteriorate. Each individual delta went through a cycle of growth, abandonment and deterioration but, until recently, growth of the entire delta system always exceeded erosion. Thus, throughout most of the entire 7,000 year period there was a gradual net increase in the total area of the delta system. This delta system was at its peak when Louisiana became a state and contained more than 4.5 million acres of coastal wetlands. During this time the natural processes in coastal Louisiana were in balance creating a tremendously diverse and productive habitat.

In addition to coastal wetlands, the deltaic system includes a branching "skeleton" of higher land in the form of natural levee ridges that mark the ancient banks of the formally active river distributaries fanning out toward the gulf. These natural levee ridges, which normally remained above the flood waters, were the principal sites for development by the early permanent residents of the Louisiana coast.

The natural processes that were taking place in coastal Louisiana were not consistent with the desires of the settlers, who wanted to live in coastal Louisiana and develop its resources. As a result, the settlers began to construct levees in an effort to keep the flood waters confined to the main channel of the river. During the early years, new settlers were actually required to construct levees around their property. It was the law of the land. As settlements expanded so did the need for better navigation channels and higher and stronger levees.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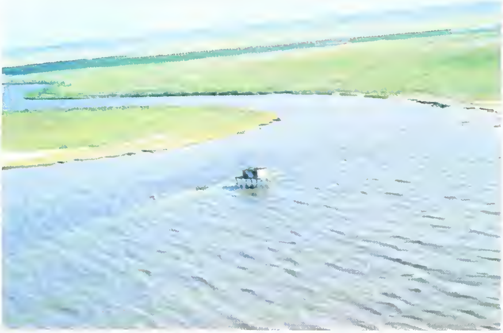
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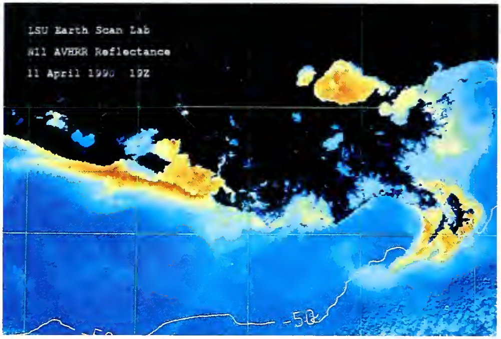
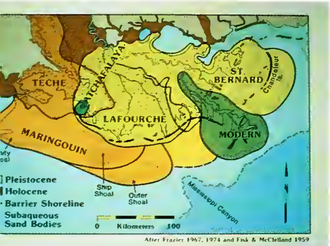
Erosion does not occur overnight, but its effects are staggering. The photo on page four shows a coastal island at the mouth of a small stream in 1968. Ten years later (top) the island has diminished considerably and in 1988 (above) the island has almost disappeared.

As a result of the flood of 1927, Congress directed the U.S. Army Corps of Engineers to construct a comprehensive series of levees along the Mississippi and Atchafalaya rivers to prevent flooding in the lower Mississippi River Valley. Unfortunately, this ambitious project, known as the Mississippi River and Tributaries Project, also prevented the freshwater and sediment from the river from building and nourishing the state's coastal wetlands as it once naturally did. The full effect of these actions on the state's coastal wetlands is only now being realized.

In addition to the leveeing of the river, there are several other factors contributing to coastal wetlands loss in Louisiana. Natural factors include sea level rise, subsidence (the sinking or compaction of marsh soils due to reduced



Charts courtesy of Louisiana Governor's Office of Coastal Activities



After Frazier 1967, 1974 and Fisk & McClelland 1959

The Mississippi River's course has undergone drastic changes during the past 7,000 years, building deltas throughout Louisiana as demonstrated in the charts above.

> ***Significant delta creation is occurring in shallow waters of Atchafalaya Bay, where the Atchafalaya River deposits sediment. The rust color shown at the left of the chart indicates the extent of deposition.***

sediment replenishment) and shoreline erosion caused by wave action and weather systems such as hurricanes and winter storms. Man's activities in these areas have also contributed significantly to the loss of coastal wetlands. Agricultural land reclamation projects, the construction of navigation channels such as the Mississippi River Gulf Outlet and oil and gas access canals further altered the "plumbing" of the rivers that formerly nourished our coastal wetlands. The construction of navigation canals and oil and gas access canals not only contributed to the loss of coastal wetlands through the direct removal of vegetated areas, but also altered the water circulation patterns in the delta system allowing saltwater intrusion into the interior freshwater wetlands.

Not all past actions can be corrected, but tremendous improvements have been made that have reduced man-induced coastal land loss in recent years. Adverse actions associated with oil and gas production have largely been eliminated due to improved drilling technology and a growing environmental awareness within the oil and gas industry. Canal dredging has been significantly reduced within the Louisiana coastal zone and sediment from maintenance dredging operations is being used more and more for the beneficial creation of new marsh or the replenishment of deteriorated marshes. Wetland restoration research must continue to address all significant human-caused losses of coastal wetlands.

The Mississippi River today carries 144 million tons of sediment (mostly clay) through Louisiana's coastal zone each year. This sediment and the associated nutrients could be a vital resource, rebuilding and sustaining Louisiana's coastal wetlands as it once did. Instead, most of this incredibly valuable resource is being swept offshore into waters too deep for wetland development. Many geologists and coastal scientists strongly believe that significant marsh building processes will not be possible unless we provide a major diversion of the sediment-rich waters of the Mississippi into the degrading coastal wetlands located in the old traditional delta lobes in both eastern (St. Bernard and Plaquemines parishes) and western (Jefferson, Terrebonne and Lafourche parishes) Louisiana.

The Atchafalaya River currently receives a controlled 30 percent of the water that flows down the Mississippi River. Some new delta creation has been occurring in the shallow waters of Atchafalaya Bay adjacent to the Gulf of Mexico. This is the only coastal area experiencing active delta development and associated wetlands building in Louisiana today. The Atchafalaya delta wetland building process is an excellent example of the effective use of sediment rich Mississippi River water.

Many bold and innovative coastal restoration projects have been proposed for the Louisiana coastal zone. Significant reductions in wetland loss will require major actions. Traditional coastal resources users may be impacted. Commercial and recreational fishery harvest patterns, wildlife habitat, coastal vegetative patterns and land configurations will change. While sensitivity to unavoidable resource use changes will be essential to success, effective action must be taken now, before it is too late!

Our next article will look at what is currently being done and what is being planned for the future to slow Louisiana's coastal wetlands loss. ■

Photo by Joey Sedtal

MARSH FISHING

BY DON DUBUC

For most of the year Louisiana's sportsmen have a big problem — a problem most of the nation's outdoorsmen would love to have. Do you fish blue water for tuna, wahoo and billfish or work the saltwater lakes and bays for speckled trout, redfish, flounder, drum and sheepshead? The dilemma worsens as fall approaches. It is then when dove and teal season enter the picture. As winter sets in it's total confusion. Besides the fishing, you could put the rod down in favor of the gun, hit the woods and fields in search of deer, squirrel, rabbits or any of the many other small game that are fair game. There are those who want the best of both and combine duck hunts with trout or bass fishing, dedicating half days to both. Around the Christmas and New Year's holidays, when it's all happening simultaneously, there are more decisions to make than whose house to visit or which football game to watch.

At the end of February when the goose, rabbit and quail hunters wrap up the last days of the hunting seasons, there is a period of at least a few weeks when there's not much of a decision for the sportsman to make. For the most part high, winds make offshore fishing impossible at worst, and at best, uncomfortable. Those specks and reds that were in the canals have scattered and it's time to put the saltwater gear away until late spring and early summer action returns.

It's one of the few times when there's not a whole lot of activities from which to choose. But for those who fish the brackish and intermediate marshes, it can be the most productive time of the year.

LDWF file photo

The angler can find a variety of species in Louisiana's brackish and intermediate marshes, ranging from catfish (above) to bass to perch.

Brackish and Intermediate Marshes

In coastal Louisiana we have four classifications of marshes: saline, fresh, brackish and intermediate. While the saline (or saltwater) and freshwater marshes certainly produce their share of fish, it is the brackish and intermediates that produce in late winter and early spring.

Brackish marsh waters are only moderately saline where wiregrass, three-cornered grass and widgeon grass dominate. Intermediate marshes are of a low saline nature. Typical vegetation found here include wiregrass, deer pea, bull tongue, wild millet, bullwhip and sawgrass. As a rule these marsh types serve as buffers between saline and pure fresh marshes. Both types are found all across the coast between Interstates 10 and 12 and the Gulf of Mexico.

Bass, Blues and Bream

Brackish and intermediate marshes by far support the widest variety of plants, fish and wildlife. At times when few other areas are productive fishermen concentrating their efforts here will put fish on the table.

The debate about whether the "marsh bass" is actually a subspecies of black bass has been argued for years. Most biologists however agree that the marsh bass is really a typical black bass which has adapted its diet and increased its tolerance for moderately salty waters to survive in the marsh. Generally they are smaller than lake or river bass but more prolific. It's not unusual for anglers to catch and release in excess of a hundred bass in a single trip to the marsh.

Most bream, a collective term for bluegill, goggle-eye and other sunfish frequently referred to as "perch," are much less tolerant of saltwater but are caught in intermediate and sometimes brackish marshes, probably when salinity levels are unusually low. There is, however, a species that not only survives in intermediate and brackish marshes but actually flourishes — the redear sunfish. Called "lakerunners" around New Orleans and "chinquapin" in the Atchafalaya Basin, redear — also known as shellcrackers and stump knockers — are found practically statewide.

Catfish, especially blue cats, are also found in these marshes and are a welcome mix with bass and bream. What is interesting about marsh catfish is the vast array of coloration they display. From pale white to slate gray to dark blue, sometimes almost black or even tinged with green, they vary depending upon the marsh from which they are caught.

These three species are the bread and butter of the marsh fisherman, but by no means are they the only species landed during late winter and early spring in this half-land, half-water habitat. Bluegill, goggle-eye, stripers, hybrid stripers, gaspergou, yellow bass and an occasional late season redfish might all end up on the stringer. Seldom if ever are crappie (sac-a-lait) caught in the marsh. They prefer deeper waters and have a low tolerance for salty waters.

Where to Fish

Much of marsh fishing takes place in 1 to 3 feet of water. However deep canals within these marshes can be very productive as fish in colder weather will congregate in deeper water seeking a comfort level in an area that typically has little natural depth variation.

Ron Patterson grew up fishing and hunting the brackish marshes on Lake Pontchartrain's north shore near Lacombe. Today he still fishes there in late spring with his son, Jeremy, and other family and friends.

"Besides the canals, I look for holes where the small bayous make turns and fish off points of land or where runoffs occur as the result of falling tides or wind-driven water," Patterson said. "Unless you're fishing near a levee bank where you're likely to find downed trees, there's really not much submerged structure, so any stick-ups or duck blinds out in the flat marsh are likely to hold fish."

How to Fish

Patterson uses a combination of live and artificial baits for marsh fishing. "We use a lot of jigs with plastic tails or skirts. The tequila color seems to be the best for all water conditions. It's important to fish very slowly because these are times when water temperatures are lowest and the fish feed slowly," said Patterson, who has 30-plus years of marsh fishing experience. "The best live bait is crawfish and you can usually scoop lots of them out of ditches this time of year."

Grass shrimp are excellent bait for redears. Cane poles with small torpedo-shaped bobbers and a split shot sinker placed 6 inches above a hook baited with two or three shrimp is as effective a rig as anything. Live worms are another good choice for marsh fishing and are an effective bait for almost all species you're likely to encounter.

Light and ultra-light gear is extremely important in cold weather marsh fishing. Light test line and flexible rod tips allow anglers to detect those very light tappings that signal the subtle strikes of sluggish bass and bream.

Marsh fishing calls for shallow draft boats. Flatboats are most popular, offering stability and easy access into ponds. Canoes and pirogues allow even easier access but aren't nearly as comfortable and tend to drift in the wind more. A couple of poles for tying up to and to push across flats should be included in every marsh fisherman's boat.

To deal with cold, damp and windy conditions, it's also a good idea to not only dress warmly but to bring an extra set of clothing. Although air temperatures may be beginning to rise, water temperatures remain low this time of year and hypothermia is a very real possibility for those getting wet.

Another consideration is fog, which is very prevalent at times when varying air and water temperatures mix. Because marsh fishing is done in shallow ponds interconnected by numerous bayous and cuts, a trip started late or ended early could be a wise decision.

So after the hunting seasons have wound down and when the winds are blowing too hard to fish open waters, there's no problem deciding what to do in the outdoors: head for the marsh. Unless, of course, you happen to be a turkey hunter, then you've got to decide well, that's another story. ■

Using a shallow draft boat (below) is important for marsh fishing because it offers stability and easy access into ponds and other shallow areas.

LDWF file photo

Forest Stewardship:

Rare Plants in Louisiana's Pine-Hardwood Forests

BY JULIA LARKE AND LATIMORE SMITH

The desire of conservation-minded landowners to manage their forested lands in ecologically sound ways is focusing interest on the special biological components of Louisiana's wooded landscape. Pine-hardwood forests, which as a general type, occupy much of the uplands, flatwoods and small stream bottoms across Louisiana and are a major source of timber production in the state. One of the first steps in maintaining the diversity of native wildlife and plants in these forests is providing information about the identification of rare species that may be found there.

The Louisiana Natural Heritage Program of the Louisiana Department of Wildlife and Fisheries is currently preparing an easy-to-understand guide to some of the rare plants of pine-hardwood forests in the state. The guide is initially intended for members of Louisiana's Forest Stewardship Program, a national program coordinated by the USDA Forest Service that encourages private landowners to sustain biological diversity on their forested lands through multiple-use resource management. LDWF provides information and technical assistance to program members in the management of their forests for wildlife and environmental enhancement. Because the Heritage Program is responsible for maintaining a database and keeping tabs on rare plants and animals in the state, their expertise was called upon to produce the manual.

Forests classified as natural pine-hardwood communities by the Natural Heritage Program occur statewide in Louisiana and are highly variable in species composition depending upon the setting in which they are found. Some site factors that influence

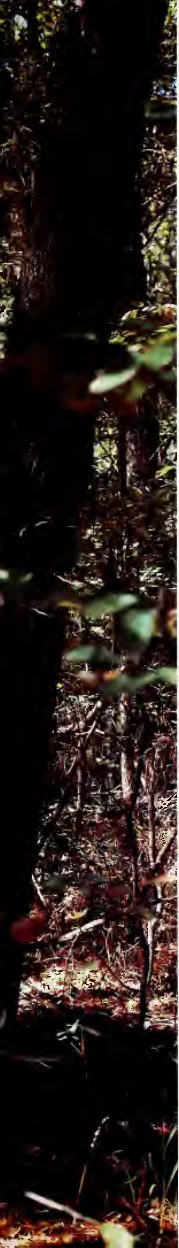


Photo by Latimore M. Smith

forest composition in any particular setting include surface geology, soils, topographic position and moisture regime. What all pine-hardwood forests have in common is the presence of pine trees in association with a mix of hardwoods. An example of a mixed-hardwood pine forest (in Winn Parish) is depicted in Figure 1.

Of the five native pines in the state, loblolly pine (*Pinus taeda*) is the most abundant and is found in all pine-hardwood communities, but principally in mixed hardwood-loblolly pine forests. These forests historically were found primarily on lower slopes leading to small stream bottoms and on flat terraces back from streams. Today, this forest type is ubiquitous, occupying many upland sites formerly dominated by other types.

Longleaf pine (*Pinus palustris*) historically was found in vast, essentially pure forests in southeastern, central and western Louisiana, of which only relict patches of pure forest remain. Because these forests are almost a pure pine type, rare plants in longleaf pine are not addressed in the guide. In naturally mixed forests, longleaf pine may be sporadically mingled with loblolly and various hardwoods in bayhead swamp forests and wet pine-hardwood flatwoods.

Slash pine (*Pinus elliottii*) is a common natural associate in these settings in the eastern Florida Parishes (slash pine has been widely planted in other areas). Spruce pine (*Pinus glabra*) is found mixed with loblolly and hardwoods in pine flatwoods, small stream forests, and hardwood slope forests in the Florida Parishes.

Although its current range is much restricted, shortleaf pine (*Pinus echinata*) was once the dominant pine in the dry uplands north of the longleaf pine range in central and north Louisiana. It occurs in association with a variety of hardwoods, mainly oaks and hickories, and in places with loblolly pine. Many of these natural forest associations have been replaced over much of their range by monoculture plantations of loblolly or slash pine.

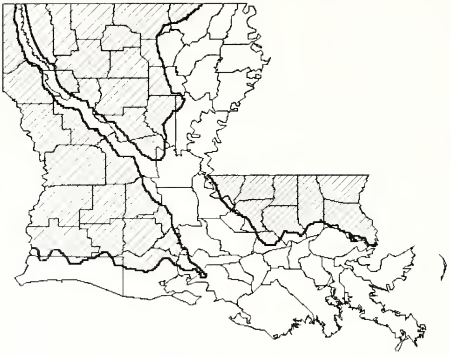
Hardwood components in moist pine-hardwood forests are extremely variable, depending on setting, but may include sweet gum (*Liquidambar styraciflua*), beech (*Fagus grandifolia*), water oak (*Quercus nigra*), cherrybark oak (*Quercus pagoda*), swamp chestnut oak (*Quercus michauxii*), white oak (*Quercus alba*), southern magnolia (*Magnolia grandiflora*), tulip tree (*Liriodendron tulipfera*), American elm (*Ulmus americana*), red maple (*Acer rubrum*), pignut hickory (*Carya glabra*) or others. On drier sites, common hardwoods may include southern red oak (*Quercus falcata*), post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), black gum (*Nyssa sylvatica*), red maple, mockernut hickory (*Carya tomentosa*) and black hickory (*Carya texana*).

Although for simplicity pine-hardwood forests are presented in a very generalized fashion, the Natural Heritage Program has developed a comprehensive classification of natural pine-hardwood forest community types and continually refines the classification as new information comes to hand. Most of the pine-hardwood forest types that we have recognized are listed in association with various rare plants in Table 1.

A wide variety of native plants are found within Louisiana's pine-hardwood forests, some of which are known from very few localities and are considered rare in the state. Because rare species often owe their scarcity to dependence on very specific site conditions that can be changed by disturbance, the presence of rare plants in a forest is often an indication that the area has been relatively little altered from its natural state. If carefully managed with multiple-use in mind, such forests and the diversity of species they support can be maintained indefinitely.

Habitat loss due to development of land for agro-forestry, farming and grazing is probably the leading cause of species rarity in pine-hardwood forests. However, not all rarity is explicitly related to the activities of man. Some plants are naturally rare throughout their range, and, through a combination of habitat loss and in some cases over-collection by plant enthusiasts, have become very scarce. An example of this circumstance is southern lady's slipper orchid (*Cypripedium kentuckiense*) which occurs in Louisiana near the southwestern extent of its native range, and grows

Shaded areas indicate regions in the state where pine-hardwood forest community types are found.



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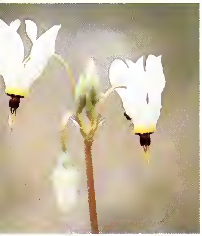


Photo by Latimore M. Smith

Photo by Lowell Urbatsch

Photo by Latimore M. Smith

The shooting star (above left) is one of the most striking wildflowers in the state. One of the rarest plants in Louisiana is Texas trillium (above right) found only in Louisiana and Texas. The Louisiana blue star (right) is found only in Louisiana and known for its fragrant, azure blue flowers.

primarily on wooded lower slopes adjacent to small stream floodplains. In our experience, it is always found in older hardwood-pine forests with an open understory.

In some cases, species are rare because they are confined to specific soil conditions that are uncommon in the state. For example, calcareous forests arise on limey, clayey soils, such as at Copenhagen in southeastern Caldwell Parish, and support many uncommon and rare plants. Among the rare plants found at Copenhagen are Oglethorpe oak (*Quercus oglethorpensis*), lance-leaved buckthorn (*Rhamnus lanceolata*), starry campion (*Silene stellata*), wahoo (*Euonymus atropurpureus*), and white-leaved leather-flower (*Clematis glaucophylla*).

The rare plant identification manual being produced by the Heritage Program will depict 25 of the rare plant species out of approximately 100 uncommon or rare plants occurring in various pine-hardwood forest communities of the state. Each species treatment will display a photograph along with brief, non-technical descriptions of the plant, its range, similar species, and key identification characters. One sample from the book will display Louisiana blue star, *Amsonia ludoviciana*, which occurs in mixed hardwood-loblolly pine and pine flatwoods. Some of the rare plant species found in pine-hardwood communities in Louisiana are listed in the accompanying table.

Other species that will appear in the manual are: shooting star (*Dodecatheon meadia* L. var. *meadia*) found in open forested slopes, often in rich or calcareous soil; sarvis holly (*Ilex amelanchier*) known from bayhead swamps and wet pine flatwoods; Indian pipe (*Monotropa hypopithys)* occurring in deep humus in rich woods habitat; bloodroot (*Sanguinaria canadensis*) found in low areas in rich woods; fire pink (*Silene virginica*), found in mixed hardwood-loblolly forests in north Louisiana; Texas trillium (*Trillium pusillum* var. *texanum*), a globally-rare plant found in bayhead swamp forests and in wooded seeps in sandy pine-hardwood forests in Caddo Parish; and downy yellow violet (*Viola pubescens* var. *eriocarpa*) known from moist calcareous forest habitat in Bossier and Caddo parishes.

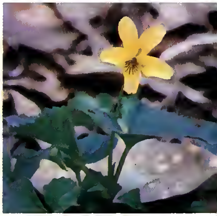
Managing pine-hardwood forests in ways that maintain Louisiana's native biological diversity will result in healthy forest systems, and, in the long run, will benefit forest landowners. Forest stewardship is the conservation of all living things that make up a forest, while at the same time prudently using its resources in many different ways to benefit human society. Promoting long-term forest management in a manner that favors ecological integrity will help conserve our state's diversity of native plants and animals and will enhance the viability of Louisiana's forested lands now and for future generations.

If you have any questions about the Natural Heritage Program, or would like a list of the rare plants/animals/communities in Louisiana, please contact: Louisiana Natural Heritage Program, Dept. of Wildlife & Fisheries, P.O. Box 98000, Baton Rouge, LA 70898-9000, phone 504/765-2821. For questions regarding the Forest Stewardship Program please contact at the above address: Kenny Ribbeck, Stewardship Coordinator, phone 504/765-2941. ■

Table 1. Some rare plants species found in pine-hardwood forest communities.

CF=Calcareous Forest BHS=Bayhead Swamp Forest HSF=Hardwood Slope Forest
MHL=Mixed Hardwood-Loblolly PF=Pine Flatwoods RF=Riparian Forest
SOH=Shortleaf Pine Oak-Hickory

Scientific name	Common name	Community
Amsonia ludoviciana	Louisiana blue star	MHL, PF, RF
Botrychium alabamense	Alabama grape-fern	MHL
Camassia scilloides	wild hyacinth	CF, SOH
Chamaelirium luteum	fairywand	HSF, MHL
Clematis glaucophylla	white-leaved leather flower	CF
Corallorrhiza odontorhiza	autumn coral-root	CF, HSF
Corylus americana	American hazelnut	MHL, RF
Cypripedium kentuckiense	southern lady's-slipper	MHL, HSF, CF
Dodecatheon meadia	common shooting-star	HSF, MHL
Dryopteris ludoviciana	southern wood fern	RF
Erythronium albidum	white trout-lily	CF, HSF, MHL
Euonymus atropurpureus	wahoo	CF
Forestiera ligustrina	upland swamp privet	MHL
Geranium maculatum	wild crane's-bill	HSF, MHL
Heuchera americana	American alumroot	HSF, MHL
Hexalectris spicata	crested coral-root	MHL, HSF, SOH
Ilex amelanchier	sarvis holly	BHS, RF, PF
Macranthera flammea	flame flower	BHS
Magnolia pyramidata	pyramid magnolia	MHL
Monotropa hypopithys	American pinesap	SOH, MHL
Platythelys querceticola	low erythrodes	HSF, MHL
Ponthieva racemosa	shadow-witch orchid	CF
Prenanthes barbata	barbed rattlesnake-root	MHL, RF
Quercus oglethorpensis	Oglethorpe's oak	CF
Sanguinaria canadensis	bloodroot	MHL
Silene stellata	starry campion	CF, HSF, MHL
Silene virginica	fire pink	MHL
Taenidia integerrima	yellow pimpernell	CF
Trichomanes petersii	dwarf filmy-fern	MHL, RF
Trillium pusillum var. *texanum*	Texas trillium	BHS
Viola pubescens var. *eriocarpa*	downy yellow violet	CF



Photos by Jack Price

Downy yellow violet (*Viola pubescens* var. *eriocarpa*), top, is extremely rare in Louisiana and is found only in Bossier and Caddo parishes in rich, moist woods. Bloodroot (*Sanguinaria canadensis*), lower, is native to eastern North America. A chemical derived from this plant is used in toothpaste and American Indians once used the scarlet sap as a dye.

Boaters' Dollars Well Accounted For

Photo by Clifton Coles

BY CLIFTON COLES

Louisiana's thousands of boaters and anglers are both the source and the beneficiary of funds used to enhance aquatic activities across the state. Millions of dollars in taxes spent on fishing equipment and related items go to improving fishing and boating resources.

Crisscrossing Louisiana are miles of bayous, streams and rivers and acres of lakes and other water bodies. Louisiana's thousands of recreational boaters and anglers want access to every yard. For them, the nearest boat ramp is a passage to freedom from the stresses and pressures of life ashore.

Though many of these same individuals may not know it, they are both source and beneficiary of millions of dollars used to enhance quality aquatic activities in the state. They are contributing to a special fund that keeps waterways accessible and improves quality fishing each time they pay for fishing or boating equipment, or buy a fishing license.

The Federal Aid in Sport Fish Restoration Act, commonly called the Dingell-Johnson Act after its two congressional sponsors, was enacted in 1950 to fund sportfish management programs nationwide through taxes collected on fishing equipment and artificial lures. The act established a 10 percent excise tax, collected at the manufacturers level, on rods, reels, creels and artificial lures. It also provided for each state's apportionment based on the total amount of land and water in each state and the total number of resident fishing license purchasers. States which diverted fishing license revenue to purposes other than sport fishery enhancement would not be eligible for Dingell-Johnson funds.

In the late 1970s, concerns regarding a growing deficiency of funds led sport fishing interests to begin looking for ways to increase monetary resources. The result was the Wallop-Breaux Amendment of 1984. Former Congressman (now Senator) John Breaux of Louisiana and Senator Malcolm Wallop of Wyoming introduced and secured passage of the legislation that amended the 1950 act.

In addition to the existing excise taxes, the Wallop-Breaux Amendment provides for funds from three additional sources: duties imposed on imported fishing tackle, pleasure boats and yachts; federal tax revenues from motorboat fuel sales; and interest that accrues from these collected funds.

The 1984 Wallop-Breaux amendment more than tripled the amount of funding available to the Inland and Marine Fisheries Divisions of the Department of Wildlife and Fisheries. In 1993, that amounted to $3.1 million.

The joint Dingell-Johnson/Wallop-Breaux process is a cyclical one, beginning and ending with boaters and anglers. As more equipment and supplies are bought, more money is placed in the fund to enhance boating and fishing. This in turn prompts the sale of more equipment and supplies, feeding the process again. It is the perfect example of a user-fee program.

Federal Wallop-Breaux funds must be matched by states at a ratio of 75 percent federal to 25 percent state money. States are allowed to use contributed funds, real property, materials, and services, either alone or in combination with state funds, to meet the 25 percent match.

"Unfortunately," said Don Lee, Assistant Administrator of Inland fisheries and Boating Access Coordinator at LDWF, "Wildlife and Fisheries cannot make all of the match. In order to avoid the necessity of declining the use of available federal funds, we've had to develop a new plan." The department developed a boating access and fishing facility program in 1986 which relies on municipal and parish governments to supply the required 25 percent match.

Under this program, parish governments propose projects which they believe will directly benefit boaters and fishermen in their area and for which there is local interest. A boat launch or pier or other structure that would increase access or recreation opportunity fits the bill. These local governments provide the 25 percent match.

Proposals for such projects, including preliminary plans and designs, must be submitted to LDWF by April of each year, at which time they are evaluated. Projects that directly benefit boaters and fishermen are placed high on the list. Once evaluation is complete and preliminarily accepted, the department commits funds with approval from the U.S. Fish and Wildlife Service (USFWS).

More detailed plans and specifications are drawn up and submitted to LDWF. At this point, another state agency, the Division of Administration (DOA) Facility Planning and Control, comes into play, reviewing the designs. Once DOA approves, all parties enter into a formal agreement and construction begins.

Louisiana's Wallop-Breaux program is the first devised using local sponsorship to match federal funds. "Louisiana's system is in high regard nationally," said Lee. "We were the first where the dollar match was not generated by a state agency. Our coordination between two state agencies and local governments is seen as a model."

Of the 50 public access and boating facility projects to which Wallop-Breaux funds have been committed, 26 have been completed and 24 are in various stages of planning and/or construction. They range from clearing standing timber for creation of boat lanes on Toledo Bend to marking boat traffic lanes with buoys on Indian Creek Reservoir to construction of a protective breakwater to allow construction of a harbor and marina at Lake Palourde near Morgan City. They also include simple reinforcement or rebuilding of established boat launching ramps all over Louisiana.

By federal mandate, 12.5 percent of Wallop-Breaux monies go to enhance boater access, and average of $350,000 a year.

This is one of the largest expenditure years in Louisiana's Wallop-Breaux history, with 10 projects selected out of 17 applicants and $994,000 allotted.

Photo by Clifton Coles

This dilapidated boat ramp in Bayou Francois (Ascension Parish) will be rebuilt and expanded, improving access to Blind River and Lake Maurepas.

Not all projects are designed as boat ramps or launches exclusively. "The program is termed Boating Access and Fishing Facility," said Lee. "Both aspects are important."

The Bonnet Carré Spillway project in St. Charles Parish, for example, involved construction of boating piers for fishing as well as reconstruction of a double ramp to handle the heavy volume of boater traffic in the area. Ample parking nearby and well-constructed roads further enhance accessibility.

In New Orleans' City Park, dredging work has begun improving a fishing site. "We're hoping to return the Park to a real urban fishing area," said Beau Bassitch, executive director of the City Park Improvement Association. The project involves deepening a channel and building up the shoreline for bank fishing. Dredged sediment will also be used to build up low regions in City Park.

"With these federal funds," said Bassitch, "City Park can get the project done at a reasonable cost. The Park is the site of the oldest fishing rodeo in the country, and the work should improve what in the past has been reasonably good fishing."

"We expect funding projects through third party sponsorship to continue," said Lee. "One important advantage is that money is spread across the state and not limited to one particular region. It also gives local citizens an active role in responsible selection of worthy projects."

In addition to money dedicated to facilities and accessibility, a portion of Louisiana's Wallop-Breaux share is used to finance LDWF aquatic education and boating education and safety programs. Activities like fishing clinics, educational programs and courses to increase awareness and safety on the water are essential to the success of these programs.

Other LDWF projects involving Dingell-Johnson/Wallop-Breaux funds include ongoing studies of lake fish populations to determine statewide lake management programs, and hatchery fish production for stocking. Additionally, two projects related to disease control receive revenue. One is a joint effort between LDWF and Louisiana State University for development of disease diagnosis techniques and training of personnel. The other is a cooperative between Louisiana and other southeastern states engaged in technical research such as development of vaccines and clearing of chemicals for use on food fishes.

Photo by Don Lee

Lake Palourde near Morgan City is among the most popular water bodies in the state for recreational boating and other water sports. Construction of a protective breakwater and creation of a harbor, including 55 boat slips, were funded by Louisiana's sportsmen.

A technical assistance plan dedicated to small pond and lake construction, statistical analyses of fisheries data and several projects dedicated to stock identification are also being funded from this source. LDWF's Inland Fisheries Division also coordinates with the Wildlife Division in various aspects of the Scenic Rivers program.

In addition, through the United States Coast Guard, LDWF receives Wallop-Breaux funding for boating law enforcement programs.

All these activities paid for by boaters and anglers further enhance the sports that Louisianians love.

The Dingell-Johnson/Wallop-Breaux program is unquestionably one of the most important and most successful in the history of the conservation movement. The goal is increased fishing and boating activities across the nation. In Louisiana, that goal is being met. ■

PUBLIC ACCESS AND BOATING FACILITY PROJECTS

Northwest Louisiana
Caddo Lake Piers (Caddo Parish)
Cross Lake Boat Launch (Caddo Parish)
Grand Bayou Reservoir Boat Launch (Red River Parish)

Northeast Louisiana
Bayou DeSiard Boat Launch (Ouachita Parish)
Bayou Bonne Idee Boat Launch (Morehouse Parish)

West central Louisiana
Toledo Bend Boat Lanes (Sabine Parish)

Central Louisiana
Iatt Lake Boat Launch (Grant Parish)
Buhlow Lake Boat Launch (Rapides Parish)
Cotile Lake Channel Buoys (Rapides Parish)
Cotile Lake Boat Launch (Rapides Parish)
Buhlow Lake Boat Launch (Rapides Parish)
Indian Creek Reservoir Channel Marking (Rapides Parish)
Larto-Saline Water Control Structure (LaSalle/Catahoula parishes)
Avoyelles Spring Bayou Channelization (Avoyelles Parish)
Sutton Lake Boat Launch (Avoyelles Parish)

Offshore Louisiana
Louisiana Artificial Reef Plan

South and south central Louisiana
Bayou François Boat Launch (Ascension Parish)
Attakapas Boat Launch (Assumption Parish)
Lake Dautrieve Boat Launch (Iberia Parish)
Spanish Lake Launch (Iberia Parish)
Bayou Pigeon Boat Dock (Iberville Parish)
Bayou Sorrel Boat Dock (Iberville Parish)
Upper Grand River Boat Dock (Iberville Parish)
Bayou Vermilion Boat Launch (Lafayette Parish)
Clovelly Boat Launch (Lafourche Parish)
Texaco Canal Boat Launch (Lafourche Parish)
Lake Boeuf Boat Launch (Lafourche Parish)
City Park Lake Restoration (Orleans Parish)
Fort Pike Boat Launch (Orleans Parish)
False River Boat Launch (Pointe Coupee Parish)
Bonnet Carré Boat Launch (St. Charles Parish)
Bayou Des Allemands Boat Launch (St. Charles Parish)
Krotz Springs Boat Launch (St. Landry Parish)
Belle River Boat Launch (St. Martin Parish)
Bayou Benoit Boat Launch (St. Martin Parish)
Lake Palourde Marina (St. Mary Parish)
Quintana Canal Boat Launch (St. Mary Parish)
Mandeville Harbor Launch (St. Tammany Parish)
Madisonville Boat Launch (St. Tammany Parish)
Schooner Bayou Boat Launch (Vermilion Parish)
Freshwater Bayou Boat Launch (Vermilion Parish)

Approved in 1993
Jack Miller's Landing Boat Launch (Iberville Parish)
Vernon Lake Channel Clearing (Vernon Parish)
Lockport Boat Launch (Lafourche Parish)
Lac Des Allemands Boat Launch (St. James Parish)
Atchafalaya River Landing (Avoyelles Parish)
Leighton Boat Launch (Lafourche Parish)
Riverside Drive Boat Launch (Washington Parish)
Frenier Boat Launch (St. John the Baptist Parish)
Bayou Bonfouca Landing (St. Tammany Parish)
Berwick Boat Launch (Lafayette Parish)

THE PROMISE OF REWARD:

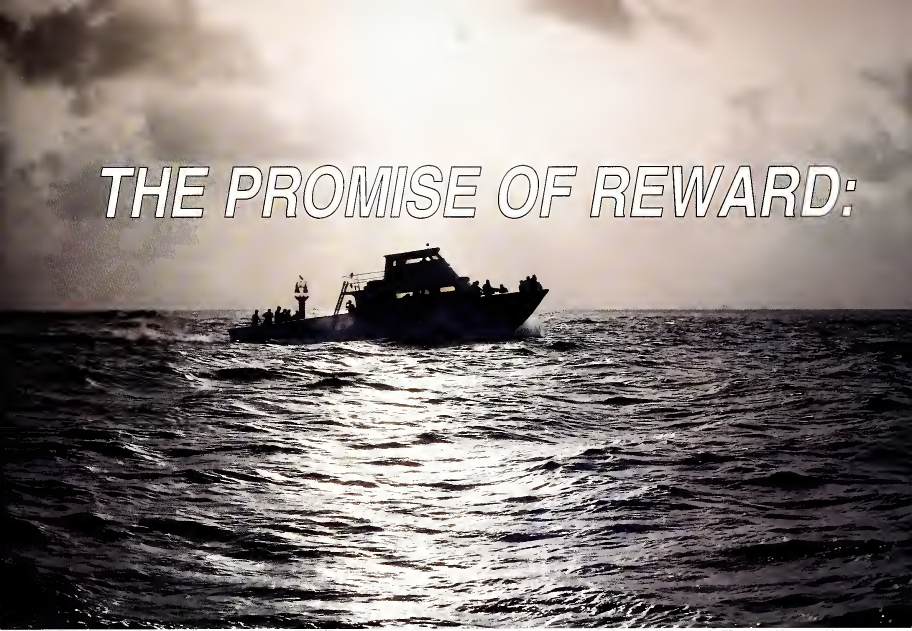


Photo by Marianne Marsh

Photo by Marianne Marsh

Whether the targeted fish is red snapper or marlin, Louisiana's Gulf waters offer numerous opportunities.

Offshore Fishing

BY MARIANNE MARSH

The open waters of the Gulf of Mexico have beckoned to many fishermen over the generations. The lure of deep water fish, the promise of reward is a temptation many anglers can't resist. A challenge once enjoyed only by the wealthy with fancy yachts is today a challenge for anyone heeding the call. Thanks to affordable mid-sized boats and reasonable charter services the offshore fishing industry thrives.

The season begins in early March and in some areas, continues through Labor Day and into early December. Whether the targeted fish is red snapper or marlin, Louisiana's Gulf waters offer numerous opportunities.

There are basically two types of offshore fishing: rig and big game. The difference in the two lies in the species sought after. Around the rigs (which includes inshore trolling) you can hook prizes like snappers, sharks, amberjacks, dolphins and king mackerels, to name only a few. The big game involves going past the continental shelf or the blue water rip for monster fish like marlin, bluefin tuna, wahoo or tarpon.

Photo by Mike Frenette

The deep water past the continental shelf is home to many big game fish. The dolphin in this photograph was caught during an offshore excursion out of Venice.

Much of the offshore excursions occur around the oil and gas platforms. Since their introduction into the Gulf in the 1930s, the platforms have amplified the offshore fishing industry. At that time, some fishermen feared the sport would perish, but Mother Nature made the best of the situation and proved she could adapt to man's interference. Underwater habitats began to flourish around the structures and both recreational and commercial fishing saw drastic increases.

After the decline of the oil industry, many platforms became obsolete. The abandoned ones were toppled and turned into artificial reefs. Again Mother Nature took advantage of the offer and new underwater communities began to prosper. Thus the oil and gas rigs earned an excellent reputation whether upright or horizontal on the Gulf floor.

Offshore trips are easily accessible through several coastal marinas and ports. Two well-known communities along Louisiana's rig-dotted coast are the Port Fourchon/Grand Isle area and Venice. These two communities located along the central and southeast coastal waters have reputations that draw anglers like cut bait draws sharks. Some of the best fishing in the world is found along this coastline.

Port Fourchon and Grand Isle (separated by a few miles) have become popular because of the excellent rig locations in the South Timbalier and Grand Isle areas of the Gulf. These two regions of the Gulf have yielded record fishing for the rigs and big game trophies. Each spring since 1928 the International Grand Isle Tarpon Rodeo takes place, faithfully bringing in trophy fish.

Charlie Hardison of Port Fourchon is an experienced old timer when it comes to offshore fishing. As the owner of a 30-year-old charter service Hardison has experienced every kind of offshore excursion possible, in addition to seeing multitudes of saltwater species. Offering three different-sized charter boats, Hardison can give the angler anything from snapper to shark, plus an occasional big game trip.

Most of Hardison's trips are scheduled for the rigs 20 to 30 miles offshore. When asked about the variety of a day's catch Hardison replied, "On any one trip you might see red snapper, which have come back really good, lemonfish, amberjack, king mackerel, tuna (black and yellow), dolphin, shark, white trout and triggerfish. Any of these are likely to be in the day's catch."

The most common rigs on his boats are for bottom fishing with squid, cigar minnows and cut bait. Hardison commented that most of his catch are snappers. Red snappers are bottom feeders often discovered in schools, sometimes called runs. Finding a run of snapper invites a fishing frenzy on board where cut bait disappears fast. And during the excitement of the snapper run, it's very possible to reel in something else - like a shark. The shark loves cut bait and usually feeds from mid-level to bottom. Considering there are nine species of sharks in Louisiana's Gulf waters, chances are good for hooking one.

The drum fish (black or red) are also bottom feeders. Referred to as scavengers, they'll take anything from cracked crabs to cut bait. Along side the drum are speckled trout. A bottom feeder too, it prefers live bait or lures resembling live prey.

Some other common fish caught around the rigs are Spanish mackerel, king mackerel and cobia, which are usually caught close to the surface. Spanish mackerel is best enticed with artificial bait. King mackerel on the other hand are usually caught while drift fishing or trolling with live or dead bait. They'll feed at mid-level depths as well as the surface. Cobias, well known for their curious surface appearances, are easily enticed with cut bait.

The species mentioned are but a few of the inshore species. This refers to those fish caught inside the 100-fathom line, the point where the descending continental shelf ends and dives into the bottomless blue. Several years ago the National Marine Fisheries Service reported as many as 46 different inshore species in the Gulf of Mexico. But offshore fishing doesn't stop at the drop-off. Once an angler moves into the deeper waters big game becomes the reward.

The deep blue water past the drop-off is home for some of the Gulf's largest species. Blue marlins, white marlins, sailfish, yellowfin tuna, tarpon and wahoo are species which concentrate mainly in deeper waters. If you're lucky enough to hook one of these monsters, you can bet you're in for a real tug-of-war. This contest can wear out the most experienced and strongest of fishermen.

Big game fishing is how Venice, Louisiana earned its spot on the map. Venice Marina was built seven years ago near the mouth of the Mississippi River and has since grown in size and reputation. Dave Ballay, president of the marina, says the reputation of the "Dazzling Delta" is international. Fishermen come from around the world for the big game off Louisiana's coast.

"The diversity is unexplainable, everything from the Chandeleur Islands to big game fishing for the giant bluefin tuna. The species run from perch to bass to marlin to tuna to wahoo," Ballay said. "There are a thousand different places to fish and hundreds of different species to fish."

Although the southeast coast offers a vast variety of angling opportunities, most of the patrons at the marina come for big game. The big draw to these waters is the blue water drop off — the 100 fathom line — lies only seven miles past the South Pass buoy. In these waters are rigs set at depths of more than 1,000 feet, which draw big fish like magnets. In addition, the blue water rip of the Gulf Stream is not far away either — most of the time.

A rip is where opposing currents meet. Unfortunately a rip never stays in the same location. Ballay elaborated on the moving rip. "Sometimes the blue water rip is 10 miles offshore, sometimes it is 40 miles offshore. You can't say let's go 20 miles out, because you might get there and the blue water rip is another 20 miles farther out. You have to go where the fish are."

When Ballay was asked where the big game fish were, he explained, "There are different directions for different fish. The blue water rip is great for marlin; for bluefin tuna you might go as far as 50 miles out; yellowfin tuna or wahoo you might have go to deep water platforms 10 to 15 miles from the mouth of the Mississippi River. In other words, they're everywhere."

Fishermen have caught tarpon in the 200-pound class every year in the deep waters off the southeast coast. No where else in the world are tarpon caught on a regular basis in this weight class. In addition to this attraction, wahoo in the 50 to 100 pound class are also a regular catch during late winter and early spring. They're out there if you know where to go.

Other noteworthy landings from these two areas of Louisiana's coast include a 32-pound red snapper, a 71-pound sailfish, a 179-pound yellowfin tuna and the biggest of the big game fish, a 616-pound blue marlin. The blue marlin is ranked as one of the largest game fish in the northern Gulf of Mexico.

These landings are but a few of the temptations that lure fishermen to the Gulf of Mexico. Once an angler takes that lure and reels in his first deep water fish, he's hooked. Whether it's a red snapper or a 200-pound tarpon, the promise of reward has been fulfilled and the pursuit continues. ■

Photo by Pete Cooper

The blue marlin is a fish coveted by many big game anglers. This marlin died during the long struggle to reel it in. Instead of throwing the 424-pound fish back into the water, it was pulled on board and brought to the dock for weighing. It was then divided among the fishing party.

LDWF file photo

He struggled on for what seemed time unending until he collapsed in the shallows, unable to walk another step.

DANGER IN THE SUN

BY CHARLIE FRANK

The weather in Louisiana is as consistently beautiful during the spring and summer months as anyone could wish. The treacherous winds of departing winter and the danger of fall hurricanes seem but distant memories. But the widely publicized threat of skin cancer is but one of the deadly threats lurking beneath clear and sunny skies. From late spring through early fall, heat is a treacherous foe and should never be ignored.

In my case, there was clear forewarning. My Labrador retriever, Admiral Bird, had been a constant companion on hunts during the winter and, with the advent of clear and sunny skies, his mournful eyes begged to be included on a fishing trip to Delacroix Island. We fished all morning, never noticing the rising temperature. The open hull, unsheltered, gave no protection from the elements. About noon, to my horror, "Admiral" collapsed. His panting and gasping for air were signs of advanced dehydration and heat prostration. We had given him water several hours before, but the heat had sapped his body fluids more rapidly than they had been replaced.

Wrapping him in a towel soaked in ice water, I cradled him in my arms and fed him small pieces of ice as we sped back to the dock. In the shade at last, he quickly recovered. It was a very close call.

Several years later, that warning of danger to man and beast should have been more carefully remembered.

What a wonderful day July 7 seemed. Huge white cumulus clouds towered into the stratosphere. The wind was a gentle breeze that hardly rippled the water. Loading cameras, ground cover and a large beach umbrella, we left Delacroix Island with the twin Yamahas humming.

The ship channel was filled with a succession of shrimp boats, trawl boards holding nets on taut lines. Flocks of Laughing Gulls and Ringbilled Gulls, with a scattering of larger Herring Gulls, circled endlessly. Shrimp and fry skittered across a glassy surface to escape the gulls. We watched the shoreline. Colony after colony of first-year gulls, terns and egrets sunned on shell berms and fished in the shallows. The marsh grasses were a counterpoint of green against the inverted blue bowl of a summer sky.

The Chandeleur Islands, 24 miles offshore, are one of the most productive of Louisiana's shore bird and sea bird hatcheries. Largely isolated, they are visited by occasional fishermen, campers and birders. Protected by the Department of Wildlife and Fisheries and the U.S. Fish and Wildlife Service, they are posted wherever nesting colonies form.

An additional 20 miles of open water separate marker No. 1 of Bay Athanasia from Curlew Island. The summer sun bore down on our crew. We hardly noticed the dehydration that had begun. Sunscreen and the fresh salt air made us revel in the sheer joy of being afloat on this estuary we loved.

Not a care in the world disturbed our thoughts. Sun and wind sucked moisture up as rapidly as our bodies discharged it. We had started at dawn and by 9 a.m. were seeking shelter in the lee of Curlew Island. As we approached, a continuous stream of gulls and terns with glass minnows in their bills raced shoreward. Like fairy sprites, their shadows were reflected in the sun-drenched waters. Sparkling ripples and diving terns, azure blues and deeper cobalt colors vied with the white sea nymphs rushing hither and thither in a search of prey to feed a thousand hungry nestlings.

Shoal water kept us nearly a mile from the beach. Inflating rubber rafts, we loaded telephoto lens, cameras, binoculars, spotting scopes, video equipment, tripods, lunch boxes, water and a large beach umbrella. We walked slowly shoreward through warm, waist high water and secured our gear on the beach.

Our attention then shifted to the nesting colonies of sea birds — the last to fledge on the barrier islands. Open sections of sand held skimmers, gulls hustled about nests in the needle grass (spartina) and glasswort (salicormia), and colonies of Royal Terns and their neighbors the Sandwich Terns, black bills tipped with mustard yellow, were raucously calling as they approached their hungry brood. Enjoying the beauty of our surroundings, we were unaware that the sun had drained us a bit further.

At about 11:30 a.m., after walking for several miles, I decided to return to our landing for a bit of lunch and a chance to rest in the shade. One of our party, Bill, asked if I'd mind if he skipped lunch, as we were only going to remain on the island for a few more hours. Sounded O.K. to me, but I reminded him to be back to the boat by a little before 2 p.m.

Bill walked along the beach — hatless and carefree — carrying about 40 pounds of camera gear and photographing Reddish Egrets playfully dancing in the shallows or stopping to watch an occasional American Oystercatcher that seemed always a bit out of range. At about 1 p.m., he decided to retrace his steps. Feeling a bit dizzy, and with a slight headache blurring his vision, he was in the first stage of heat prostration. With no fluid intake since 9 a.m. and shimmering heat waves rising all around, he grew confused. Walking away from the boat instead of toward it, he was getting deeper and deeper into serious trouble. About an hour later, he reached the north end of the island. Realizing his mistake, Bill started to painfully retrace his steps. By now he was stumbling, his head aching with a mind-numbing pain and his vision a kaleidoscope of light and flashes. Finally abandoning his cameras and pack, he struggled on for what seemed time unending, until he collapsed in the shallows, unable to walk another step.

Photo by Charles Frank

Inattentiveness to warning signs can quickly lead to heat prostration. Above, Bill lies in a raft as two friends pull him to safety. He recovered but it was a close thing.

At 2:30 p.m. we knew he must have had a problem. Loading most of our equipment back on the boat, we were getting ready to circle the island looking for him. The spotting scope was still mounted and a last look at 40 power magnification picked him up in a shimmering mirage. He was lying on his side in about 10 inches of water and waving

LDWF file photo

Heat exhaustion is especially dangerous to children, who may not be able to recognize the clues of its onset. Always be sure children wear hats and drink plenty of fluids when enjoying the outdoors.

feebly. One of our crew sprinted along the beach to him, while I got the boat underway.

Bill was incoherent and in very bad shape. We placed ice in a hat and put it on his head, and cans of cold cola under each armpit and against his groin. More ice in a makeshift terry cloth bag went around his neck. Only when we were sure he could swallow without choking did we let him take a couple of swallows of ice cold cola. After many long and anxious minutes, he started to tell us what had happened.

We lifted him into the raft and transferred him back aboard the boat. Still too weak to stand, he drank a small amount of Gatoraid and sucked an ice cube. As we docked two hours later, Bill had to be supported to get to the car. It had been a very close thing. Fortunately, young bodies recouperate quickly and a few days later he presented the crew with T-shirts emblazoned "Curlew Island Rescue Team."

Another couple of hours on the beach at Curlew Island may well have produced a tragically different outcome.

Reviewing our experience, I felt an expert was needed to confirm our first aid procedures. Dr. Charles L. Brown Jr., the New Orleans Saints physician who monitors the team for just such maladies, spoke to me at great length about the dangers of dehydration and attendant heat stroke.

Dr. Brown defined the first level of heat prostration as the inability of the body to keep up with the amount of fluids lost, hence dehydration. Quoting from the American College of Sports Medicine's "Guidelines For The Team Physician," 15 to 30 minutes of moderate exercise can be fatal if the body temperature reaches 105 degrees. High temperatures and high humidity can quickly cause heat sickness.

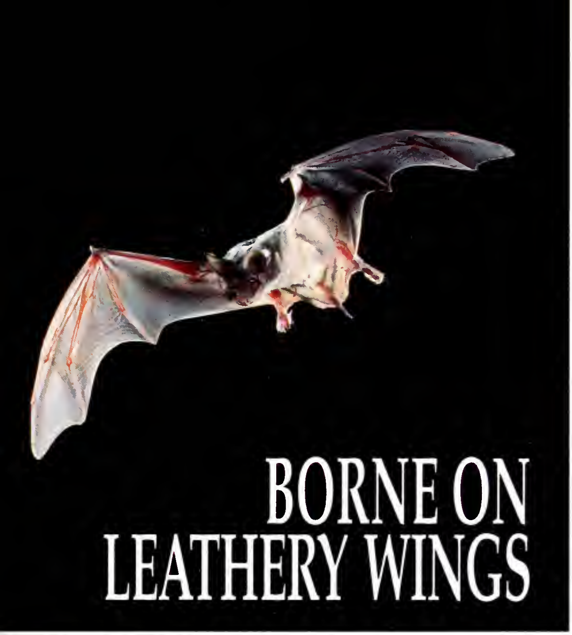
Since evaporation of sweat is the cooling mechanism the body depends upon, if humidity conditions won't allow evaporation to take place, muscular cramps are the first warning the body receives. In addition to cramps, symptoms of heat sickness include lethargy, anxiety, irritability and an uncoordinated or spastic gait. Rehydration is the best means of avoiding the problem. Fluids should be consumed constantly during exposure to summer sun. Water is far more important than the salt tablets in which past generations put their faith. Salt replacement is important, but not nearly so critical as fluid replacement.

The most dangerous phase of heat prostration occurs when body temperature rises. Once past 105 degrees, the damage can become irreversible. Death can occur.

The three stages of the malaise are dehydration, heat exhaustion and heat stroke. Clinical boundaries of the three stages are blurred. Physical conditioning and acclimatization are also a consideration. A southerner is apt to be less affected by heat and humidity than a visiting sportsman from the north. The danger, however, is still there.

My log book now has boldface warnings. Wear a hat in the summer sun. Always carry a flask of water. Use the buddy system, keeping in eye contact with at least one member of your party. If a party member shows signs of headache, cramps, nausea or blurred vision, get fluids in his system at once and head for the barn.

Caution is the only way to avoid tragedy in the wild kingdom of nature. ■



BORNE ON LEATHERY WINGS

BY CLIFTON COLES

Photos by Merlin D. Tuttle, Bat Conservation International

Bats are one of nature's most misunderstood and maligned group of creatures. Man's fears of animals that are active mostly at night, coupled with a bat's odd shape, have led to creation of many myths.

Some tall tales are really batty, like bats becoming entangled in women's hair or sucking blood. (There are blood-drinking bats, but not in this state or on this continent.) In the end, these stories remain only fiction. The truth, however, turns out to be much more interesting.

Bats are mammals — that is, warm-blooded, furred and giving birth to live young that feed off mother's milk. They are the only mammals that truly fly. Some mammal groups are called 'flying' (flying squirrels, flying lemurs, Australian flying possums) but these animals only glide. A flap of skin stretched between ankle and wrist allows them to glide from branch to branch.

Bats have taken the adaptation one step further. The bird-like 'wing' is a membrane extending from the sides of the body, legs and tail that is supported by elongated finger bones like an umbrella's ribs.

Bats have five digits like humans, but only the four fingers are used for flying. The short, hooked thumb is used for clinging to surfaces when the bat lands. The longest finger (the third digit) can be as long as the entire body, head and legs. The evolution of a special cartilage (the calcar) between legs and tail allows for an even larger flying surface. Further adaptations of the legs and muscles in the chest make bats efficient flying machines.

In flight, the up-and-down flapping of the wings puts the entire membrane in motion. The effect is that bats look as if they're swimming through the air. The ability to control the shape and size of the wing surface makes a bat in flight as agile as any bird.

The 942 species of the bat order, Chiroptera (Greek for hand-wing), are all designed on these same plans. The wing adaptation makes front limbs nearly useless on the ground, so locomotion on flat surfaces can be best effected by small leaps.

The unique upside down roosting position keeps wings free, so all a bat has to do is let go of the branch with its feet and drop, spreading its wings for flight. The wings of the largest bat, the Indonesian flying fox, open up to an immense 6-foot span. The tiny bumblebee bat of Thailand, with its 2-inch wingspan, is a contender for the title of world's smallest mammal.

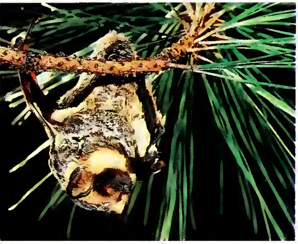
Sheltering in caves, trees and buildings, some bat species congregate in colonies of thousands of individuals. At sunset, they leave the safety of their roosts and take off into the night to forage.

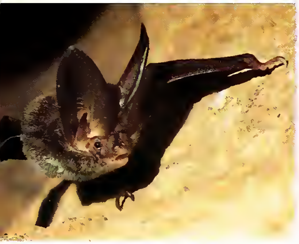
Most bats feed on insects caught while flying. These are mostly small bats, superbly adapted for night flying. All Louisiana bats fit into this category.

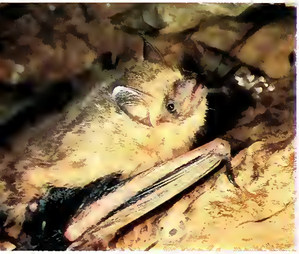
There are also fruit-eating bats of tropical African and Asian jungles; carnivorous bats that eat a highly varied diet of lizards, frogs, birds and other small mammals; fish-eating bats that catch fish at or near the water surface with powerfully-clawed feet; and flower-feeding bats that eat pollen and nectar, fluttering above the petals like hummingbirds.

The most famous of all bat groups, and the group that has contributed most to the order's bad reputation, are the South American vampire bats. There are only three species in this category and, though they feed exclusively on blood, they rarely choose humans for a meal. They prefer poultry and livestock unable to reach them or shake them off as they feed.

Vampires, incidentally, are best adapted to ground locomotion, folding their wings up to act as another set of







There are 11 bats native to Louisiana. At top is the hoary bat, so named for its frosted or "hoary" appearance. At center is Rafinesque's big-eared bat. Note the adaptation of the thumb for clinging and how the wings are folded for ground locomotion. Also notice the tragus, a small stick-like organ at the base of each ear. The eastern pipistrelle, at bottom, is one of the most common bats in the state.

legs. This adaptation is essential for the one group that doesn't feed on the wing.

Louisianians don't have to worry about vampire bats. They shouldn't worry about bats at all, since these animals pose few dangers. The benefit they bring to humans around the world in consuming great quantities of insects is incalculable.

Most bats are designed to eat insects. Evolution has equipped them with several adaptations to help capture their elusive quarry in almost complete darkness. The most important of these is a form of sonar. Like a submarine underwater, a bat locates prey by emitting high frequency sound that detects vibrations of intended victims and sends them back to the bat. This method (echolocation) allows a bat to hunt in little or no light.

The bat has developed large ears to pick up sound, and a special stick-like organ, the tragus, located at the base of each ear that is sensitive to the slightest vibration.

After the ears and wings, a bat's most distinctive characteristic is its nose leaf designed to help direct the sonar. These vary in shape and size from species to species. They can be shaped like flowers, leaves, spirals, funnels or horseshoes. Some are large enough to cover the whole face; others are simply folds of skin. All serve the same echolocation purpose. Louisiana's bats are plain in comparison with the multitude of face appendages found on bats all over the world.

Echolocation is not foolproof. Most bats are collecting information from only about 20 feet directly ahead. To complicate things further, many insect species defend themselves by producing their own clicks and beeps which confuse a bat and may send it in a completely wrong direction. Other insects are able to detect the sonar and change course or simply drop to the ground to escape capture. The bat, holding a steady course, misses its target.

Odds are strengthened in a bat's favor by the fact that it rarely snags insects out of the air with its teeth. They are captured in the wing and tail membranes and picked out as flight continues. This process takes only a few seconds.

A bat's usefulness as an insect control agent is very important. In some parts of the world, they are the only predators of night insects. In regions like Louisiana where flying insect populations thrive, a colony of bats takes a sizable portion of local insect numbers. A single big brown bat can snag 3,000 to 7,000 insects a night. Multiply that by thousands of bats in a colony, and the benefits are clear.

Bats sometimes choose attics and eaves of inhabited homes to roost, causing problems for residents. Discovering a bat in your house can be a terrifying experience — for you and the bat. Before taking a tennis racket to the little critters, you should remember how important a bat can be for controlling insects. With that in mind, you can provide alternative housing for these flying mammals.

A bat house is an ideal way to help these maligned creatures while at the same time helping control insect populations.

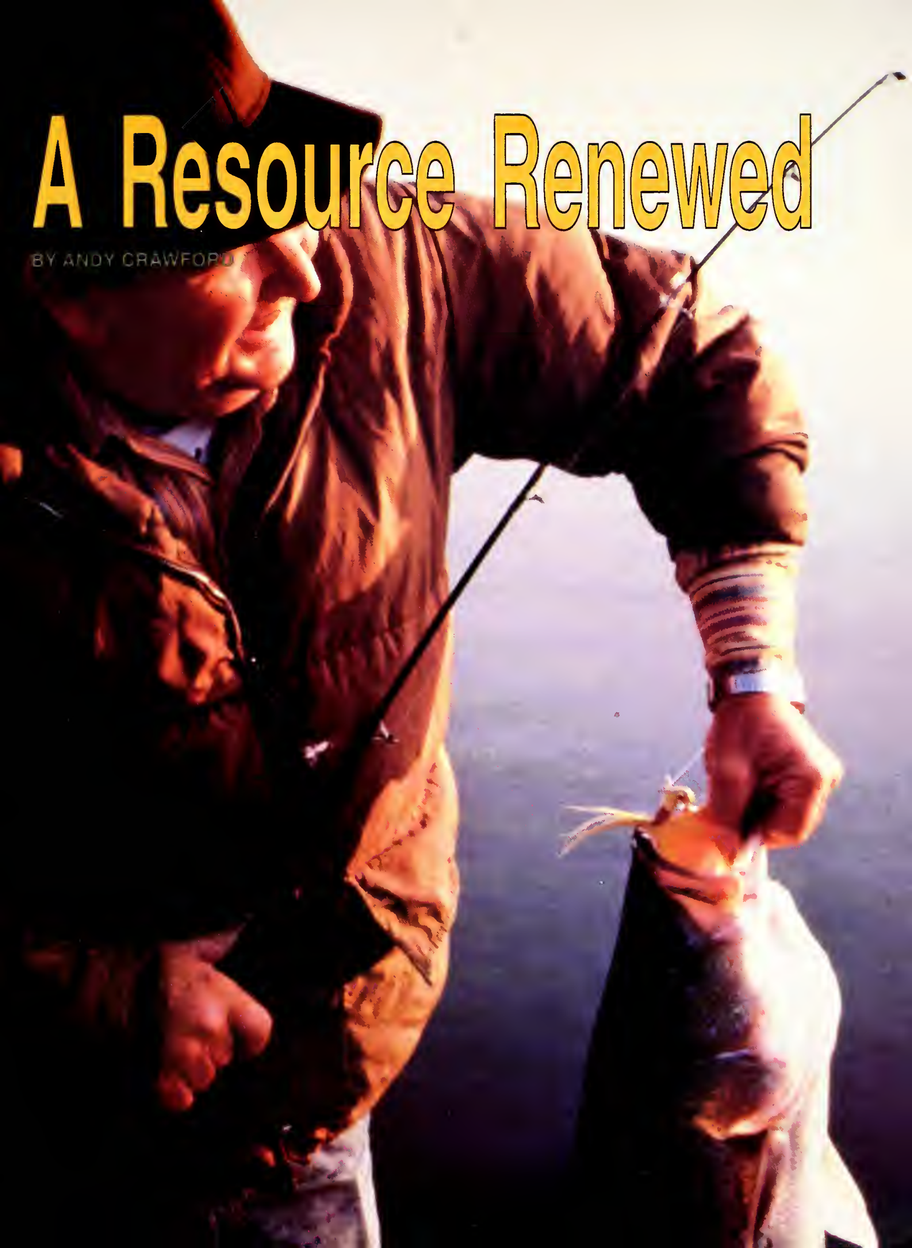
There are many styles of bat houses, but all need rough inner surfaces to allow for climbing and easy hanging. You shouldn't expect a colony of bats to occupy their new dwelling right away. It must be properly constructed and placed, and even then it may take a while before they move in.

Location is important. Bats must have quick access to open areas to find food, but the site must be quiet enough not to be disturbed while inhabitants are roosting.

As people have learned more about bats and their benefits, the number of bat houses have increased nationwide. They are perfect for keeping potential nuisance bats out of attics and chimneys while providing adequate living space. The final results are much-needed insect control, as well as conservation and further understanding of this fascinating mammal group. ■

A Resource Renewed

BY ANDY CRAWFORD



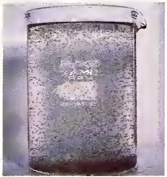


Photo by Don Lee

Hard work and dedication brought striped bass back from near extinction in Louisiana.

WF file photo

Before the Toledo Bend Fish Research Station was established in 1976, artificial spawning was carried out in crude environments. LDWF biologist Janice Little "strips" a female striper of eggs, beginning the hatching process that leads several weeks later to the release of millions of juvenile striped bass into Louisiana's waterbodies.

The striped bass once was a common sport and food fish in coastal Louisiana. It could be found in coastal lakes such as Lake Ponchartrain, Lake Borgne and many connecting streams and rivers. They were at one time plentiful enough to have been sold at the famed French Market in New Orleans.

Then the species disappeared — not just from the market, but from Louisiana waters. By the early 1950s, the population of stripers in Louisiana had suffered drastic declines and by 1956 there were no verified populations of the fish in this state. "Stripers just disappeared and nobody knows why. They just ceased to be," according to Department of Wildlife and Fisheries Programs Manager Arthur Williams.

Man-made changes in the streams and rivers were suspected, but with the state's numerous natural resources, other fish quickly took the place of striped bass.

Interest in the fish was renewed in the late 1950s, when it was learned that landlocked striped bass were surviving and reproducing in South Carolina's freshwater Santee-Cooper Reservoir. Researchers discovered that striped bass could consume large quantities of nuisance gizzard shad while also providing an excellent sport fishery.

In 1964, Janice Hughes Little — now an LDWF Inland Fisheries project coordinator — helped begin a Louisiana shad control research project after hearing a speech calling for more research on stripers. "We, like most states, were plagued with an overpopulation of gizzard shad, so we put some (striped bass) in our lakes to see how they would control gizzard shad," Little said. Surveys also were conducted in coastal areas beginning in 1965 to determine if there were any remaining coastal populations of stripers.

These were the first steps in what led to reintroduction in 1965 of striped bass into Louisiana waters. Introducing the species into freshwater was primarily a matter of controlling gizzard shad. "It was just a management tool. We wanted to convert that gizzard shad protein to a sport fish protein," Williams said.

Coastal stockings of about 23,000 adult stripers followed in 1967 in an effort to re-establish reproducing striped bass populations in Louisiana waters, said Williams, a charter member of the Southern Division of the American Fisheries Society Striped Bass Committee.

Thirty years later, Louisiana anglers can again enjoy the hard fight of these large bass. There are even breeding populations in two Louisiana rivers. Other than those stripers in the Atchafalaya and Mississippi rivers, however, the population of this game fish is sustained by a massive, ongoing stocking effort by state biologists.

LDWF hatchery effort not only supports this state's striped bass fishery, but also supplies other state and federal restocking programs: of the 20 million striped bass spawned each spring at the Toledo Bend Hatchery, about half go to the federal government in return for Florida largemouth bass used to stock Louisiana waters.

Though successful by any standard, the Louisiana striped bass restocking program's beginnings were rough, to say the least. The only thing really known about stripers at that time was that they were anadromous — that is, they spent a part of their life cycle in saltwater, but spawned in freshwater. Also, a South Carolina researcher had discovered how to artificially spawn stripers using hormones.

Armed with this meager knowledge, Little obtained a million day-old striped bass fry from South Carolina in 1965. She immediately faced a problem.

"We knew we couldn't put them directly into ponds because they would settle in the muck and die, but we didn't know how to hold them in tanks," she said.

Little placed the fry in a large tank and put an agitator in the water for aeration as was commonly done with other species. That was a mistake.

"In a few minutes, I had crushed about 40,000 of them. That's when we found you couldn't use an agitator on them," she said. Through such problems, it was discovered that air could be gently pumped from the bottom of the holding tanks to keep the fry suspended until they were strong enough to be placed in a pond.

The next problem concerned feeding striped bass fry. "They were real tiny and wouldn't eat what other small fish were usually fed. After trying egg yolks and dry feed, we got them to feed on newly-hatched brine shrimp," Little said.

That first year, Little was able to rear about 8,000 fish, which were stocked in D'Arbonne

Lake and Toledo Bend Reservoir. This helped establish a stock in the lakes. In 1966, she was unable to add to that number. "We were working on it, but we ran into first one problem, then another," Little said. Fish have been produced every year since 1966.

Finally, LDWF's stock was old enough to spawn in 1970. Using techniques learned in South Carolina, where the use of hormones for spawning stripers had been discovered, Little went to work.

"I got one fish to spawn that year. I had my husband and some friends with me and we spawned her on Lake D'Arbonne at one o'clock in the morning," she said. That one spawning led to 10,000 additional stripers being raised and released.

Little and two other biologists, Charles Biggar and James Brantley, continued working on the project at Lake D'Arbonne for several years. During the two months of spawning each spring the days were long and the work was hard.

"It just about killed all three of us for about two months every year. We were working 24 hours a day and grabbing naps when we could," Little said.

During those early years, the best Little and her small team were able to do was hatching and raising 3 million striper fry on Lake D'Arbonne. Adult brood fish were first kept in pens in the lake and later on the lake's banks in "living streams" — a technique developed by other Louisiana biologists working in Maryland on a related striped bass project — which kept the water in a tank circulating and aerated through a false bottom. The fish were monitored pretty much night and day until the egg-laden females were ready to spawn.

Biggar and Brantley kept a check on the fish to determine when they would spawn. Then, Little would "strip" the female of her eggs. The thousands of eggs would be put in a pan, mixed with sperm from male stripers and water would be added. Finally, the mixture was placed in hatching jars so the eggs could be hatched. This was a delicate process, because there had to be enough movement in the water to keep the eggs rolling around.

"If they settle in the bottom of the jar, they will fungus or smother. In other words, they will die," Little explained.

During the same period, 1970-73, biologists Arthur Williams — who, as a student worker, made the trip in 1965 to South Carolina to bring the first stripers back to Louisiana — and Dudley Carver were working in Maryland trying to transfer the Chesapeake Bay strain of stripers to Louisiana for stocking in coastal regions. The goal was to re-establish a viable population of stripers along the coast. This effort was, by and large, unsuccessful, but there were other benefits.

"We worked out the knowledge that we based our hatchery procedures on," Williams said. The techniques used when the Toledo Bend Hatchery was established in 1976 were built around the work done in Maryland and South Carolina.

Though now proven successful, LDWF biologists were very unorthodox in their techniques for capturing brood stock stripers. "Louisiana broke every rule when it came to capturing adult stripers because we had to," Williams said.

Ideally, stripers are caught near dams during spawning runs through the use of electroshocking. That option, however, was not feasible in Louisiana where there were no spawning runs, so biologists used nets to capture stripers from lakes when the fish were near spawning conditions.

"You're not supposed to be able to spawn netted fish" because the process stresses the fish too much, Williams said. "We even used hook-and-line-caught stripers. That's even worse."

Photo by Don Lee

The artificial spawning process begins by injecting female stripers with hormones. The fish then are monitored around the clock until they are ready to spawn. The stripers are then anesthetized (below) so they can be stripped of eggs.

Photo by Don Lee

Little said she believes the reason Louisiana biologists were able to break these rules was the care with which the fish were handled during and after capture.

"We don't fight them very long," she said.

Williams agreed, saying that the characteristic making striped bass such an attractive sport fish also makes handling the fish after capture extremely difficult.

"They fight until they give up, and when they give up, they want to die," he said.

Williams and Carver, however, developed one of the secrets of handling adult stripers and ensuring their survival in captivity. They learned that stressed stripers would turn belly-up in freshwater while their counterparts placed in water containing salt tended to survive.

Photo by Arthur Williams

The large size of striped bass and their ferocious fight have made the fish extremely popular with anglers.

It also was quickly learned that adult stripers required high levels of oxygen, so water in holding tanks was aerated with pure oxygen.

The big break came in 1976 when the Toledo Bend Hatchery opened with the mission of producing 10 million fry each year. "That was like going from driving a four-wheeler to driving a limousine. It just took off," Williams said. "We've been producing more than the proposed 10 million stripers since the day the hatchery was built."

The hatchery did not change the techniques used to rear stripers. Those, in fact, have changed very little since the early 1970s. It is still a labor-intensive job requiring long hours of work from those involved.

"The technique has not changed that much. It's just that more people have learned the technique and many more people are working on the project," Little said.

The annual one-month "spawning run" at Toledo Bend Hatchery now involves about 30 people working shifts to net, monitor and spawn adult fish and hatch the eggs. It still takes a lot of fish to produce 20 million fry, but Williams said this is largely unavoidable because of the stress the fish undergo during capture. It currently requires spawning about 40 fish each year, even though a large striper can produce several million eggs.

"It takes way too many brooders because of our capture and holding techniques. We should be able to spawn 20 to 25 fish and have all the eggs we need," he said.

This still is a marked improvement, however, over the humble beginnings of three people working day and night hoping to spawn just one fish.

Although the emphasis of the Louisiana striped bass program has shifted to trading stripers for Florida largemouth bass, continued infusions of stripers into Louisiana waters are vital. Without such work, this state would again lose this wonderful sport fish in all but the Mississippi and Atchafalaya rivers.

"The fishery probably couldn't last five years," Williams said.

Biologists no longer hold out hope that reproducing populations can be re-established in coastal rivers that once hosted yearly runs of these large fish. "If it was going to happen, I think it would have already occurred. They just can't find that attraction flow," Williams said.

It is believed that dredging has interrupted this vital attraction flow of coastal rivers. Attraction flow, caused by the turbulence of a river's water dropping into deeper coastal lakes or open ocean, is required at the mouth of rivers for stripers to home in on spawning grounds from the open ocean or saltwater lakes in which they spend most of their lives. When a river's mouth is dredged, the required turbulence is moved upriver and stripers can not find the current necessary to hold their eggs in suspension until they hatch.

But as long as anglers can still routinely pull fish weighing more than 20 pounds from Louisiana waters, LDWF officials point to the striped bass restocking program as a genuine success story.

"It kept the Gulf of Mexico race of stripers off the endangered species list," Williams said.

Due to an anti-harassment clause contained within the endangered species act, placement of the striper on this list would have made all commercial fishing almost impossible.

"There wouldn't be any commercial fishing at all. That's your alternative," Williams said.

So the next time you pack up for a trip to Toledo Bend to battle striped bass, remember that the privilege to go after this hard-hitting fish was renewed only a few years ago through dedicated efforts of the Department of Wildlife and Fisheries.

It is such dedication that will ensure the continued diversity of Louisiana's wildlife and fisheries resources for generations to come. ■

Education Corner

A CLOSER LOOK

By Lyle M. Soniat, Ph.D.
Louisiana Sea Grant College Program
Jean May-Brett
Dominican High School, New Orleans

While recently visiting family and sharing a wonderful meal, we decided to walk a bit to make room for the dessert. My young daughter, feeling a bit lazy said, "Aw, walks are boring!" Like most kids, she needed a little motivation to pry her away from cartoons. Quickly I said, "We're not just going walking — we're going on a nature study. You know — looking for seeds and bugs and birds and critters. Let's see what we can find."

She needed little added motivation, now that a "boring walk" was out and a "nature study" was in. As a parent, I am challenged to find ways to continually direct my child's energy and create opportunities for her to learn outside of the classroom. Observing the living things around us can be as exciting as a family vacation, providing us with a continuous experience in the wonders of the natural world.

Once the senses are alerted, a neighborhood walk becomes a nature study. Your eyes, ears, nose and fingertips are aware of your surroundings. On a walk, the range of assorted subjects and sounds provide a sensory overload. You may feel pleasure, but you don't feel and see all of the details. When you take the time to note each sensory stimulation, the beautiful emerges where it was overlooked or not expected. A close look at a school playground may reveal a spot where the dandelion has broken through the asphalt or a bird is nesting in an overhang.

Once the senses are alerted, a neighborhood walk becomes a nature study.

After several nature walks, I noticed that my daughter's interest started to lag. We had turned over the same leaves, seen most of the bugs and birds, and solved some mysteries. We needed to take the nature walk to the next level. I explained that it might be fun to record some of our observations so that we might look at them later.

By recording our observations in a special notebook or nature journal, we could repeat the experience for pleasure or learn additional things by noting trends or patterns. The effort to look again and record by drawing increases the level of observation. The size and color of an insect is clearer; details about spider webs or leaf patterns are enhanced. Observations over a period of time can also provide a look at the seasons and an appreciation of change as a constant.

Getting Started

There is no "right" time to begin keeping a journal. Start right now! Keeping a nature journal requires only the desire and some low tech materials—a pencil and a notebook. Buy a bound notebook with either ruled or blank paper. Or the notebook may be constructed using a plain folder and regular typing paper. A decorated cover makes the journal reflect the notebook's purpose.

Step outside the house or classroom to start the expedition. You don't have to be on a safari. Insects or birds will catch the eye everywhere. While you are watching a bird feeder or weeding the lawn, the relationships within natural systems unfold. A work trip to a family camp can become a new experience if it is turned into an afternoon of discovery. Visits to the zoo or a neighborhood park, even walks along a bayou, provide new experiences when people become actively engaged in observing the flora and fauna in their natural environments.

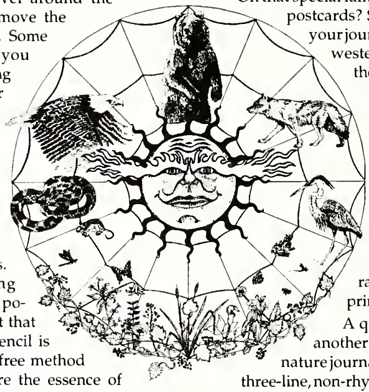
While you are watching a bird feeder or weeding the lawn, the relationships within natural systems unfold.

A large area like a playground or yard can first be mapped so that separate zones can be inspected and studied on subsequent excursions. An army of ants moving along the cracks in the sidewalk, a pair of doves sitting on the phone lines, and many other creatures that have been overlooked in life's rush to get from place to place, might become part of a survey. Begin by turning over a leaf or brick or looking closely at a lichen attached to a branch or twig. There is no wrong way or bad entry in a personal journal. It is yours.

There are some different recording techniques that may be used. You can write words about your observations, or illustrate them. A contour drawing requires that the item become the center of one's concentration. Looking at the object and imagining that one's eyes are the tip of the pencil can be the start of sketching.

There is no wrong way or bad entry in a personal journal. It is yours.

As the eyes travel around the specimen, slowly move the pencil accordingly. Some recommend that you should keep looking at the subject, never glancing away or peeking at how the sketch is turning out. An idea for drawing subjects that frequently move would be a gesture technique using quick strokes. Gesture sketching quickly records the position or movement that is observed. The pencil is used in a fast and free method that tries to capture the essence of what the subject is doing.



Whatever style is used, each entry should be identified. It would be appropriate to indicate the date, time, place and perhaps a quick weather description. Remember that a nature journal is not meant to be a diary. When various family members keep a journal, sharing entries provides an expanded way of learning. The use of a nature journal to improve perceptual skills is truly a lifelong engagement.

Extensions

The drawing or word description recorded in the journal can begin an extended learning experience. By comparing the record with field guides or published resource materials, a whole adventure unfolds. There are excellent resource materials available for all ages. Members of different generations can search together.

On that special family vacation, why buy postcards? Send something from your journal. Many of the early western artists embellished their letters with an illustration. In Dances with Wolves, Kevin Costner's character drew on the pages of his journal. How exciting it would be to receive a letter with a view of something that impressed the sender personally rather than a postcard printed by the thousands.

A quick verse or poem is another form of entry for a nature journal. Haiku is a Japanese three-line, non-rhyming poetry style. The poem has a first line of five syllables, the second line uses seven syllables, and the final line returns to five syllables. Outside with your notebook, compose a haiku to describe an animal, plant or the general setting. The poem conveys what you saw and felt.

ACTIVITIES

Walter Anderson, a New Orleans native, spent many years sketching and painting the plants, animals and sights along the Gulf Coast. His style used a few simple motifs that everyone is familiar with. A simple suggestion is provided with each of the forms shown. Close your eyes and think of a view you remember or simply look at the objects around you and select items that could be drawn with each shape.

A circle	○	the moon
A half-circle	◠	a sunset
Two half-circles	◠◡	sand dunes
A wavy line	◠◡◠◡◠	waves coming ashore
A zig-zag line	/\/\/\/\	tree tops
A spiral	🌀	the coil of a snail shell
A straight line	———	the horizon

Take a few moments to become familiar with the motifs by using them to sketch things around you. Select a few objects from your yard—a flower, a bird nest or a tree may be examples.

LAW LINES

Behind the Badge

BY CAPT. KEITH LACAZE

Boating Ethics

Summer means fun for the lucky residents of a state blessed with an abundance of water. Louisiana offers a wide range of aquatic activities enthusiastically pursued by its citizens and visitors.

Boating safety is a major responsibility for the wildlife agent and a good percentage of time is spent on water patrol. So much time on the water allows one to make observations and come to conclusions on a variety of subjects. One opinion shared by all officers and probably by the majority of experienced boaters is that courtesy is a primary safety factor. Unfortunately it seems to be a factor seriously lacking in the conduct of many boaters.

Complaints of near miss high-speed passes, swamping, property damage and littering commonly greet an agent upon arrival on any given body of water. Such abuse causes excessive regulation and closure of scenic and environmentally sensitive areas. Everyone loses due to the careless actions of a few thoughtless individuals.

A day on the water provides a form of freedom seldom experienced in today's lifestyle. With that freedom comes responsibility and a basic respect for others that no law can create. Proper conduct should be considered part of planning and preparation for any outing.

Consideration for others begins at the boat launch. Vehicles and boat trailers should be placed so as not to interfere with others using the launch. It is surprising how often access to public facilities is blocked by improperly parked equipment.

The rights of others must also be considered when on the water and underway. High speed boating is not only dangerous, it can be extremely annoying. Swimmers, skiers, fishermen and slow moving boats should be avoided. When it is necessary to move past fishermen or other anchored vessels, reduce speed to idle if possible. It is not only a courteous gesture, but may prevent the occupants of the other boat from being injured or swamped.

High speed also produces high wakes which can damage shorelines and shoreline structures such as docks, piers and boat houses. Boaters can be held liable for damage caused by their wakes. But far more likely is the prospect of closure to powered vessels to avoid property damage and shore erosion.

Boaters must also understand and respect the rights of shoreline property owners. In general, property rights extend to the water's edge and may vary with the current water level. The freedom to navigate the water does not include the right to use the land. Incredibly, some people believe that if land can be accessed by water, they cannot be legally barred from trespassing on the property. That is one fallacy which can result in an extremely unpleasant experience and a costly fine. Always obtain permission from the owner before launching or mooring on private property.

Remember also that sound carries well over water. Whenever boating in the proximity of waterfront homes, try to hold noise levels to a minimum. This courtesy should include voice levels and radios as well as engine noise.

One of the most prevalent problems on the water today continues to be littering. Although prohibited by law, illegal waste disposal is a constant environmental embarrassment all over Louisiana. The amount of litter found along the shores of our lakes and streams is surpassed only by the variety of containers, packaging material and food products of which it consists.

Litter is not only an eyesore but a threat to wildlife as can be seen in numerous photographs and video tapes of fish, ducks and other species wearing plastic six pack holders and other ornaments provided by someone who disposed of garbage the easy way. Carry a litter bag onboard and use it. Nearly all public boat ramps provide waste disposal containers. Bag your trash and dispose of it properly.

Signs and buoy markers provide directions and warnings to all who use the waterways. But they are a constant target of destruction. Missing or moved channel markers can cause serious navigational hazards. Anyone finding damaged or misplaced navigational aids should immediately report the problem to the proper authorities.

Finally, every boater should be aware of other boats in the area and willingly offer assistance to anyone in distress. Assisting with emergency repairs or towing a stranded boater to shore may interfere with the plans of the day, but helping a fellow boater is part of the " Unwritten Code" and simply the right thing to do.

Laws and regulations protect lives, property and our natural resources. Common sense, good judgement and courtesy cannot be legislated. If we treat other boaters with the same consideration and respect we hope to receive, every excursion will be a relaxing and pleasurable experience.

Photo by Sgt. Robert Duthu

Courteous boaters will observe no wake zones and other restrictions necessary for safety and protection of private property.

CONSERVATION notes

Sen. McPherson, 10 LDWF Staffers Recognized By LOWA

The Louisiana Outdoor Writers Association (LOWA) presented its annual Arthur Van Pelt Award for lifetime conservation achievement to state Sen. Joe McPherson. Ten Department of Wildlife and Fisheries staff members also were recognized by LOWA for their outstanding work restocking state inland waters ravaged by Hurricane Andrew.

As chair of the senate Natural Resources Committee, Sen. McPherson oversees the work of the Department of Wildlife and Fisheries and the Department of Natural Resources. He has written and passed 25 major bills, many concerning conservation legislation, during his 10 years in the Louisiana Legislature.

LDWF Fisheries Biologists Jody David, Bruce Davidson, Mark McElroy, Tim Morrison and Mike Walker, Fisheries Specialists Tracy Castleberry, Eric Champagne, Chris Menard and Jeffrey Viator, and Fish Hatchery Manager Mark Lawson were cited for work above and beyond the call of duty in response to this natural disaster.

An estimated 200 million fish died as a result of Hurricane Andrew in September 1992. Between 6.5 million and 7 million fish have been restocked in the Atchafalaya Basin since then. Besides coordinating the restocking, LDWF continues to monitor recovery in the region.

1994-95 Wild Louisiana Stamp Art Chosen

The work of nationally-renowned artist Murrell Butler has been selected to grace the 1994-95 Wild Louisiana Stamp. Gary Lester, Department of Wildlife and Fisheries Natural Heritage Section Coordinator, announced Butler's depiction of a pair of Roseate Spoonbills as the winning art on Jan. 25, 1994, after it was reviewed by a panel of five judges.

The winning artwork is a beautiful rendering of an adult and an immature Roseate Spoonbill against a twilight background. The characteristic brilliant pink image of these unusual birds is clearly shown.

Butler, a longtime resident of the St. Francisville/Tunica Hills area, was selected artist of the year in 1988 by the Louisiana Wild Turkey Federation and his print was selected as the 1988 Wild Turkey Stamp Print. He also has illustrated the *Field Guide to Mexican Birds*, prepared 21 illustrations for the *Encyclopedia Britannica*, and his works have often appeared in the *Louisiana Conservationist* magazine and other journals. For the past 10 years, he has been designing wildlife stamps for the National Wildlife Federation.

The 1994-95 stamp featuring Butler's painting will go on sale May 1, 1994, at parish sheriff's offices, LDWF headquarters in Baton Rogue (2000 Quail Drive), LDWF's New Orleans office (400 Royal St.) and stores statewide.

Prints will be available for sale from the artist. For more information, call 504/765-2821.

Money generated by stamp sales and subsequent art print sales are dedicated to LDWF non-game, endangered species and land stewardship programs coordinated by LDWF's Natural Heritage Section.

Resident and non-resident visitors to department-administered lands, such as wildlife management areas and refuges, must possess a Wild Louisiana Stamp or a valid hunting or fishing license. The stamp is valid from July 1 to June 30 of the following year.

Safari Club Donates 133 Wood Duck Nest Boxes

The four-year effort by the Department of Wildlife and Fisheries to restore the Wood Duck population was bolstered March 3, 1994, by a generous contribution from Safari Club International/Southeast Louisiana Division of $2,500 worth of Wood Duck nest boxes.

Ron Bartells, vice-president of the local club, and Lloyd Songe Jr., board member, presented a symbolic check to LDWF Wood Duck box program coordinator Bill Burns. "The check represents a total of 133 Wood Duck nest boxes," Burns said.

To date, the department has installed and maintained more than 2,000 Wood Duck nest boxes in bottomland forests across the state.

Photo by Andy Crawford

Department of Wildlife and Fisheries biologists Tim Morrison (left) and Mike Walker (middle) accept an award from the Louisiana Outdoor Writers Association on behalf of the department for its work toward restoring the Atchafalaya Basin to pre-Hurricane Andrew condition. LOWA Vice-President Joe Macaluso (right) presents the award.

The long-term program goal is 5,000 nest boxes across the state.

The new Wood Duck nest boxes will be used for Wood Duck management on new land acquired by the department during the past year.

Safari Club International is a worldwide hunters' organization. Local chapters contribute to conservation projects on an annual basis. This contribution is just the latest of many Safari Club contributions to conservation in Louisiana.

Turkey Restoration Boosted

The Louisiana Chapter of the Wild Turkey Federation showed its support of the Department of Wildlife and Fisheries' turkey restoration program by recognizing the department and two private entities for efforts to expand the range of the Wild Turkey in this state.

The federation presented a complete set of refurbished Louisiana Chapter Wild Turkey Federation prints and stamps (1981-1991) for their part in the ongoing program. LDWF Secretary Joe L. Herring accepted the matted and framed collection of stamps on behalf of the department and the Louisiana Wildlife and Fisheries Commission and said the prints will be displayed in the department's executive conference room.

Tri-parish Wild Turkey Chapter of Southeast Louisiana was recognized for generous donations of equipment, volunteer time, fund raising work and wild turkeys to the department program. In addition to contributing trapping nets, rockets and a utility trailer, they also donated three shotguns to reward turkey hunters who participated in voluntary check-ins during the 1992-93 season and allowed LDWF to trap 14 turkeys from their hunting leases for relocation.

Darryl Pennington also was acknowledged for providing access to his land in East Baton Rouge Parish, from which LDWF biologists trapped 12 Wild Turkeys this spring and relocated them in an area of the state where the turkey population needs bolstering.

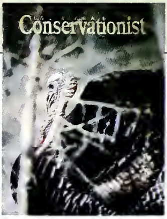
The Louisiana Chapter of the Wild Turkey Federation has been especially active since 1981. Today there are 2,500 members who conduct fund raisers which provide about $60,000 annually for stocking turkeys across the state and rehabilitating turkey habitat on public and private lands.

AMERICAN LEAGUE OF ANGLERS And BOATERS

U.S. Sen. John Breaux (second from left) joined the American League of Anglers and Boaters in Washington, D.C., last February to congratulate LDWF on work well done. Accepting an award for publicity of the Boating Access Program were (left to right) Don Lee (Inland Fisheries), Corky Perret (Assistant Secretary) and Sara Ann Harris (Information and Education). Lt. Col. Charles Clark (second from right) of the Enforcement Division accepted an award for Louisiana's Boating Safety and Law Enforcement Program.

Lifetime Licenses Holders

Broussard, Aaron	Sulphur
Distefano, Daniel L.	Plaquemine
Dubea, Chad N.	Marrero
Eckard, Rachael I.	Winnsboro
Hayward Jr., Alexander	Monroe
Marsh, Matthew G.	Tallulah
Sages, Joseph P.	Baton Rouge
Spencer, William D.	LaPlace
Styron, John R.	New Orleans
Elwick, Candace A.	Metairie
Boulet, Jr., Stephen	Lafayette
Davis, Edward W.	Morgan City
Monteiro, Michael	Houma
Roark, Reggie G.	Enterprise
Bariola, Stephen P.	Tallulah
Boyet, Kendall J.	Angie
Boykin, Roger D.	Slidell
Butler, Luke A.	Crowley
Colvin, Michael R.	Bernice
Colvin, Russell M.	Bernice
Cusimano, Daniel G.	Farmerville
Cusimano III, Joseph	Farmerville
Daigle, Sr., Mervin	Iowa
Dugas, Jr., Randall	Baker
Freeman, James E.	Plaquemine
Fruge, Jeremy W.	Jennings
Gaddy, James M.	Kinder
Gibbs, John B.	Bossier
Higgins, Carruth-Coe	Port Allen
Johnson, Charles	St. Francisville
Lancaster Jr., John	Oak Grove
Lavespere, Burt L.	Montgomery
Nelson, Brian P.	Greenwell Sprgs
Provost, Brandon L.	Scott
Provost, Jr., Timothy	Scott
Schiro, Jeffrey C.	Kentwood
Shumaker, Aaron P.	Lake Charles
Tubb, Michael D.	West Monroe
Tuminello Jr., Charles	Addis
Wisenbaker, James	Youngsville
Young, Byron A.	Abbeville
Andrews, Steven J.	Zachary
Bullock, John A.	Baton Rouge
Cheramie, Carlton	Cut Off
Creed, III, Richard	Baton Rouge
Cupper, Brady W.	Youngsville
Davis, Jr., Richard	Sibley
Falgoust, Quentin	Thibodaux
Forbes, Joseph K.	Hammond
Gordon, C. Vance	Baton Rouge
Heard, Joseph A.	Shreveport
Heard, Joseph S.	Shreveport
Heard, Steven C.	Shreveport
Hennigan, Jeff C.	Sulphur
Hennigan, Shane A.	Sulphur



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Bayou Kitchen

by Wayne Miller

Photo by Ken Glaser

Classic Sauce Piquant

1	cup of dry red wine
$2\frac{1}{2}$	lbs game meat (rabbit, alligator, venison, squirrel, etc.), cubed
2	cups onion, chopped
$\frac{1}{2}$	cup olive oil
3	loves garlic, minced
1	large bell pepper, chopped
1	cup celery, chopped
2	cups green onions, chopped
$\frac{1}{2}$	cup parsley, chopped
2	cans (8 oz.) tomato sauce
1	lb. fresh tomatoes, seeded, peeled, chopped
1	lb. mushrooms, sliced
2	tablespoons Worcestershire sauce
$\frac{1}{2}$	teaspoon basil
2	bay leaves
$\frac{1}{2}$	teaspoon oregano
$\frac{1}{4}$	teaspoon cayenne pepper, or to taste
	salt and black pepper to taste
	Tabasco to taste

Marinate game in 1 cup of red wine at least 2 hours before using in sauce. Saute onions in oil until golden brown, stirring often. (Do not allow to burn.) Add bell pepper and celery and saute until tender. Add chopped tomatoes and tomato sauce as well as other seasonings. Simmer for 10 minutes, then add mushrooms and drained game. Cook covered for 45 minutes, then add green onions, garlic and parsley and cook uncovered for 15 minutes. Serve with rice.

Carrots and Snow Peas

4	large carrots, peeled, cut into $2\frac{1}{2}$-x-$\frac{1}{2}$ inch strips
2	tablespoons butter
4	medium shallots, minced
1	lb. snow peas, dry sherry (approximately $\frac{1}{4}$ cup)
	salt and pepper to taste

Bring medium saucepan of water to boil. Add cut carrots and simmer until they begin to soften (about 2 minutes). Drain and stop cooking by plunging into cold water. Drain. Melt butter in heavy large skillet over medium heat. Add shallots and cook 1 minute. Add carrots and peas. Stir and cook 1 minute. Sprinkle with sherry and cook until vegetables are crisp-tender (about 3 minutes). Season with salt and pepper. Serves 6.

Baked Louisiana Strawberries with Ice Cream

2	cups halved strawberries
$\frac{2}{3}$	cup blue berries
2	plums, pitted, cut into eighths
1	peach, pitted, cut into eighths
1	tablespoon sugar
$\frac{1}{3}$	cup sweet white wine
	vanilla ice cream

Preheat oven to 325 degrees F. Place fruit in 8-inch square glass baking dish. Sprinkle with sugar. Pour wine over fruit. Bake until fruit is tender about 20 minutes. Cool slightly. Serve warm with vanilla ice cream. Serves 6.

Note: Other fruit can be substituted and the results are always wonderful.

LOUISIANA

Conservationist

CALENDAR

1994-1995

Cover photo by Frances Grunt
Lake D'Arbonne, Union Parish

Above photo by Jason Saucier, Jr.
Kisatchie Bayou, Natchitoches Parish

SEPTEMBER 1994

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
AUGUST 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	OCTOBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			*DMAP application deadline.* *Alligator season opens this month.* 1	*Make final preparations for dove hunt.* 2	*Dove season opens.* 3
4	*New moon* *Labor Day* 5	*Rosh Hashanah* 6	*Bow hunters should prepare for opening day with archery practice.* 7	8	*Gift subscriptions to Louisiana Conservationist are very affordable.* 9	*Timber rattlesnakes give birth.* 10
Grandparent's Day 11	*First quarter moon* *Go night fishing for crappie in fresh waters.* 12	*Peak migration/staging of tree ducks in southwest Louisiana marshes and rice fields.* 13	*White shrimp begin migration to the gulf as water temperatures cool.* 14	*Commercial spotted seatrout season opens.* *Yom Kippur* 15	*First cool fronts initiate movement of flounder, redfish, sheepshead and black drum from marsh ponds to deep waters.* *Peak spawning for redfish.* 16	*Teal season opens.* *Archery and squirrel seasons approaching.* 17
Endangered Peregrine Falcons return to Louisiana from northern breeding grounds. 18	*Full moon* 19	*Begin distribution of tags and records to DMAP cooperators.* 20	*Time to plant winter wheat food plots.* 21	22	*Fall Equinox (first day of fall)* 23	*Louisiana's National Hunting and Fishing Day* 24
Teal season closes. 25	26	*Last quarter moon* 27	28	29	30	

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Greg Guirard
Atchafalaya Basin, St. Martin Parish

OCTOBER 1994

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
SEPTEMBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	NOVEMBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30					*Rabbit and squirrel seasons open.* *Archery and commercial hunting preserve seasons open.* 1
Brown shrimp begin spawning offshore. 2	*Gulf sturgeon migrate out of rivers to gulf waters.* 3	*New moon* 4	*Clean and repair bird feeders, and stock up on winter bird food.* 5	6	*Migrations of Green-winged Teal, Shoveler, Gadwall, Widgeon, Pintail and Ring-necked ducks intensify. Initial flights of Mallards begin to arrive.* 7	*Bald Eagles return to Louisiana to begin nesting.* 8
Clean and oil your fishing reels. 9	*Columbus Day observed* 10	*First quarter moon* 11	*Columbus Day* *For good fishing and great fall color, float fish a small stream.* 12	*Begin flooding rice fields for waterfowl.* *Wild Turkeys begin to congregate in hardwood areas.* 13	*Speckled trout and redfish move to upper estuaries.* *Sight-in rifles for approaching deer season.* 14	*Woodcock begin to appear in Louisiana.* *Commercial mullet season opens.* 15
Menhaden season closes. *Oysters begin to store glycogen and fatten as water temperatures cool.* 16	17	*Flood crawfish ponds.* 18	*Full moon* *Alligators' feeding activities diminish.* 19	*Secretive Yellow Rails arrive this month to spend the winter in southwestern Louisiana fields and marshes.* 20	*Large flounder concentrate along barrier islands before migrating.* 21	*Major migration activity for all waterfowl species.* 22
23/30 *Daylight Saving Time ends (30).*	*Fall shuffle for quail completed.* *Halloween (31)* 24/31	25	*Statewide quail surveys begin.* 26	*Last quarter moon* 27	28	*First platform donated in 1987 to Louisiana's Artificial Reef Program.* 29

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Katherine Smith
Fourchon, Lafourche Parish

NOVEMBER 1994

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		All Saints Day Renewals sent to commercial license holders. 1	Begin flooding green trees for waterfowl. 2	New moon 3	Begin exercising your bird dogs for Quail and Woodcock seasons. 4	5
Deer rut underway in Area 2. Sumac leaves turn scarlet red. 6	Oyster spawning and redfish spawning ends. Seabobs begin appearing along coast. 7	Largemouth bass moving away from bank. Election Day 8	Fall waterfowl migration in full swing with mallards and diving ducks arriving with cold fronts. 9	First quarter moon 10	Veterans Day Stock bluegill in new or renovated farm ponds. 11	Special hunting season north of Hwy. 28 on Dewey Wills WMA for the handicapped. 12
13	Begin issuing commercial licenses for 1995. 14	Trapping season approaching. 15	16	Large flounder increasingly available for gigging along the coastal barrier islands. 17	Full moon 18	19
20	Winter is a good time for wildlife photography. 21	22	23	Thanksgiving Day Quail season opens. 24	Common Goldeneyes return to coastal Louisiana. 25	Last quarter moon 26
27	Hanukkah 28	29	30		OCTOBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	DECEMBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

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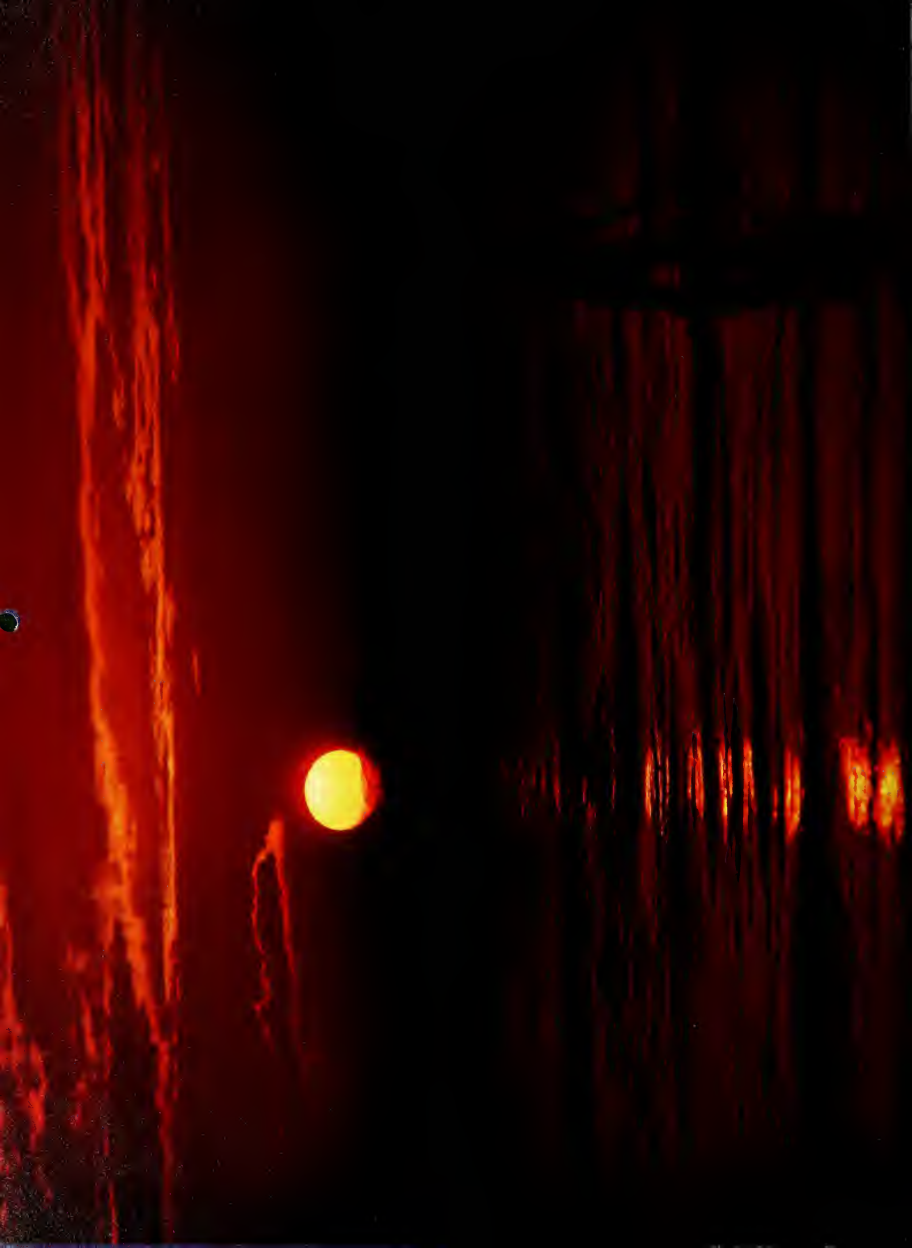

Photo by Katherine Smith
Isles Dernieres, Terrebonne Parish

DECEMBER 1994

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
NOVEMBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JANUARY 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			1	*New moon* 2	*Canada Geese begin arriving in southwest Louisiana.* 3
Hunting and fishing items make great Christmas gifts. 4	*Hanukkah ends.* 5	6	*Brown Pelicans begin nesting on Queen Bess island.* 7	*Sheepshead catches increase with low tidal conditions.* 8	*First quarter moon* *Brown pods of the rare wild coco orchid are evident in upland longleaf pine areas.* 9	*Time to perform annual maintenance on Wood Duck boxes and make necessary repairs.* 10
11	12	13	14	*Clusters of mistletoe evident in deciduous hardwood trees.* 15	16	*Full moon* 17
Purchase 1995 commercial licenses early. *Deer rut underway in Area 1.* 18	*Squirrels begin their rut.* 19	20	*Winter Solstice (first day of winter)* 21	*Christmas bird counts conducted across North America.* 22	23	*Christmas Eve* 24
Christmas Day *Last quarter moon* 25	26	27	*Recycle Christmas trees for marsh management, wildlife cover piles or mulch.* 28	29	30	*New Year's Eve* *1994 commercial licenses expire.* 31

Report Outdoor Outlaws ***1-800-442-2511***

Lake D'Arbonne, Union Parish

JANUARY 1995

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
New Year's Day *New moon* 1	*Peak waterfowl numbers in coastal Louisiana.* 2	*LDWF begins annual Bald Eagle nest surveys.* 3	*Peak deer breeding time in Atchafalaya Basin.* 4	5	*Crappie appear in river channel at Toledo Bend.* 6	*Resident Great Horned Owls nesting.* 7
First quarter moon. *Red maple begins blooming this month.* 8	*Endangered Louisiana pearlshell reproduces in cold water creeks in central Louisiana.* 9	*Deer begin loosing antlers in Area 2.* 10	*Bald Eagles begin nesting. Report sightings to LDWF.* 11	*Large schools of crappie congregate in deep water.* 12	*Early nesting wood ducks begin their search for tree cavities.* 13	*Striped bass migrate up Mississippi and Atchafalaya rivers.* 14
Bright red berries persist on dormant deciduous holly in forests and along fence rows. 15	*Martin Luther King, Jr. Day* *Full moon* 16	17	18	*Woodcock begin leaving the state for northern nesting grounds* 19	20	21
Last deer season ends. 22	*Last quarter moon* 23	*Male Woodcock can be seen and heard in courtship flights.* 24	*Clean and repair Purple Martin nest boxes in anticipation of first arrivals in early February.* 25	26	27	*Brown Pelicans may be observed, at times, resting on the Cameron jetties.* 28
Peak number of Canada Geese in southwest Louisiana rice fields. 29	*New moon* *Squirrel season close (30).* 30	31			DECEMBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

Report Outdoor Outlaws **1-800-442-2511**

Photo by Jason Saucier, Jr.
Holly Beach, Cameron Parish

FEBRUARY 1995

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	Groundhog Day Crabs in berry stage found along beaches. 2	Gulf sturgeon enter rivers to find suitable spawning habitat. 3	4
Opossums give birth this month. 5	6	First quarter moon 7	8	Bright golden blossoms of yellow top blankets fields and roadsides. 9	Peak recruitment for juvenile southern flounder in Calcasieu Lake. 10	11
Lincoln's Birthday State record largemouth bass (15.97 lbs.) taken from Caney Lake in 1994. 12	Clean and repair Eastern Bluebird nest boxes. 13	St. Valentine's Day 14	Full Moon Deadline for submitting DMAP harvest records. 15	16	Good pre-spawn largemouth bass fishing. 17	Edible wild greens can be gathered in fallow fields. 18
White bass begin spawning. 19	Presidents Day Over-wintering waterfowl begin spring migration northward. 20	Sac-a-lait schools breaking up. 21	Last quarter moon 22	Wild turkeys begin to gobble on warm days. 23	24	Armadillos give birth this month. 25
Big largemouth bass begin biting on crawfish at Toledo Bend. 26	27	Mardi Gras Quail and rabbit seasons close. 28			JANUARY 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MARCH 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Report Outdoor Outlaws ***1-800-442-2511***

EVINRUDE
LA 548
DURA CRAFT

Photo by Jason Saucier, Jr.
Chicot Lake, Evangeline Parish

MARCH 1995

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
FEBRUARY 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	APRIL 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30		*Ash Wednesday* *New moon* *Start fertilizing farm ponds.* 1	*Begin drawdown of flooded areas managed for waterfowl.* 2	*Large spawning size black drum enter estuaries.* 3	*Largemouth bass begin nesting.* 4
5	*Initial Wood Duck broods begin to appear.* 6	*Pink shrimp begin appearing in Chandeleur Sound.* 7	8	*First quarter moon* 9	10	*Coastal migratory species such as Florida pompano and Spanish mackerel begin arriving along the beaches.* 11
Mottled Ducks begin nesting on coast. 12	*Turkey flocks break up as gobbling and courtship intensifies.* 13	*Clean and hang up hummingbird feeders with solution of four parts water and one part sugar.* 14	*Pheasant crowing counts begin.* 15	*Full moon* 16	*St. Patrick's Day* *Eastern Bluebirds begin building nests.* 17	*Peak black drum spawning.* 18
Peak of Wood Duck nesting. 19	*Spring equinox (first day of spring)* 20	21	*Initial nesting of Wild Turkeys.* 22	*Last quarter moon* 23	*Largemouth bass begin spawning.* 24	*Quail coveys begin to breakup.* 25
Northern Parula Warblers return this month from wintering grounds in the Caribbean and Central America. 26	27	*First peak of Wild Turkey gobbling.* 28	*Spring migration of Blue-winged Teal peaks.* 29	*New moon* 30	*Tubular red and yellow flowers of red buckeye visited by hummingbirds.* 31	

Photo by Allen Riley, Jr.
Chicot Lake, Evangeline Parish

APRIL 1995

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
MARCH 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MAY 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31					*April Fool's Day* *Striped bass artificial spawning begins at Toledo Bend Hatchery.* *Frog season closes.* 1
Daylight Saving Time begins. 2	*Louisiana state wild flower, the giant blue iris, blossoms in southern marshes.* 3	4	*Rare Swallow-tailed Kites return to the Pearl River basin to nest.* 5	*Dewberries ripen this month.* 6	*Start weed control measures in farm ponds.* 7	*First quarter moon* *Peak ingress of brown shrimp post larvae into Calcasieu Lake.* 8
Palm Sunday 9	*Collect mayhaw fruit for jams and jellies.* 10	*Osprey begin nesting on edges of swamps in south Louisiana.* 11	*Lady slipper orchid, very rare in this state, flowers in mature hardwood forests of central and north Louisiana.* 12	*Early Mottled Duck broods appear.* 13	*Good Friday* 14	*Passover* *Full moon* *Diamondback terrapin season closes.* 15
Easter 16	*Most Wild Turkey hens on nest. Second peak of gobbling activity occurs.* 17	*Purple Gallinules arrive from south and central America to begin nesting.* 18	*Alligator snapping turtles begin laying eggs.* *Commercial menhaden season opens.* 19	*Peak crappie spawn at Toledo Bend.* 20	*Last quarter moon* *A life jacket is your friend for life. It won't work if you don't wear it.* 21	22
23/30 *Last day for commercial spotted seatrout fishing (30).* *Commercial hunting preserve season closes (30).*	*Dove fields using sunflowers should be planted within next 2 weeks.* 24	*Purple flowers of rare hairy lupine may be seen in sandy uplands of the eastern Florida Parishes.* 25	26	27	*Renewals sent to recreational gear license holders.* 28	*New moon* 29

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Greg Guirard
Lake Fausse Pointe, Iberia Parish

MAY 1995

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1995-96 hunting and fishing licenses are on sale. *Begin issuing 1995-96 recreational gear licenses.* 1	2	*Brown Pelican nesting in full swing.* *Wild turkey hatch underway.* 3	4	*Time to pick red mulberries.* 5	6
First quarter moon 7	*The graceful orchid, spreading- pogonia, will bloom until July in wet savannahs of southeast Louisiana* 8	*Dewberries ready for picking.* 9	10	*Beginning of summer-long spawning of spotted seatrout.* 11	12	13
Mother's Day *Full moon* 14	15	16	*Silky camellia, an uncommon native shrub, blooms in rich upland woods.* 17	18	19	20
Last quarter moon 21	22	*Plant browntop millet fields for doves within the next 3 weeks for September seasons.* 23	24	*Wild blueberries are ripening in the piney woods.* 25	*Young Red-cockaded Woodpeckers leave their cavity nests.* 26	*Historical time of natural lightning fires in the piney woods.* 27
28	*Memorial Day observed* *New moon* 29	*Memorial Day* 30	31		APRIL 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE 1995 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Report Outdoor Outlaws ***1-800-442-2511***

South Timbalier Area, Gulf of Mexico

JUNE 1995

MAY 1994

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JULY 1994

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SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				Statewide surveys on song bird breeding conducted this month. *Frog season opens.* 1	2	3
4	5	*First quarter moon* *Blackberries ripen this month.* 6	7	8	*Eastern coral snakes lay eggs this month.* 9	*Hybrid striped bass schooling.* 10
White shrimp post-larvae move from offshore to estuaries. 11	*Full moon* *Chanterelle mushrooms fruiting in bottomland oak forests.* 12	13	*Flag Day* 14	*Bluebirds begin building nests again in preparation for second brood.* 15	*Peak alligator nesting.* *Diamondback terrapin season opens.* 16	17
Father's Day 18	*Last quarter moon* 19	*Rare red penstemon in flower in upland deep sands of Central and northwestern Louisiana.* 20	*Summer solstice (first day of summer)* 21	*Threatened ringed sawback turtles laying eggs June through July in Pearl River Basin.* 22	23	*Louisiana Fishing Enhancement Act signed into effect in 1986, creating Louisiana's Artificial Reef Program.* 24
25	*Get a jump on other sportsmen by purchasing 1995-96 sport and recreational gear licenses early.* 26	*New moon* *Most Wild Turkey poults are flying and roosting in trees, assuring good survival rates.* 27	*Purchase your Wild Louisiana Stamp by the end of the month.* 28	29	*1994-95 hunting, fishing and recreational gear licenses expire.* 30	

Photo by Stephen Everett
Socia Creek, Grant Parish

JULY 1995

JUNE 1995

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AUGUST 1995

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SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						Purchase 1995-96 sport and recreational gear licenses. *Catahoula Lake drawdown begins.* *Commercial king mackerel fishery reopens.* 1
Large number of blue crabs along barrier island beaches. 2	3	*Independence Day* 4	*First quarter moon* 5	6	7	8
9	10	11	*Full moon* *End of most Wood Duck and Wild Turkey nesting activity.* 12	13	14	15
16	*Peak of quail hatch begins in pine lands.* 17	18	*Last quarter moon* 19	*Time to make filé' from dried sassafras leaves for home-cooked gumbos.* 20	21	22
23/30	24/31	25	26	*New moon* 27	*Rose gentian in bloom in prairies and pine lands.* 28	29

Report Outdoor Outlaws ***1-800-442-2511***

Toledo Bend, Sabine Parish

AUGUST 1995

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		Hunting season nearing. Check equipment and exercise to get into shape. Also buy hunting licenses to avoid the rush. 1	*Continue fall wildlife planting work.* 2	*First quarter moon* 3	4	5
6	7	*Large numbers of Ruby-throated Hummingbirds pass through Louisiana to Central America.* 8	9	*Full moon* 10	*Get lanterns and gigs ready for flounders on mud flats and shallows.* 11	12
First Blue-winged Teal and Pintail begin appearing in Louisiana. 13	*Scout hunting areas and check mast-producing trees.* 14	*Begin mowing strips through dove fields.* 15	16	*Last quarter moon* *Work retrievers to get in shape for dove season.* 17	*Blue-winged Teal begin congregating on Catahoula Lake.* 18	*Create rabbit bedding and cover for other wildlife by piling together tree limbs.* 19
Bull redfish begin congregating near tidal passes. 20	*Best largemouth bass fishing at night at Toledo Bend.* 21	*Family groups of Swallow-tailed Kites can be observed soaring over Pearl and Atchafalaya river basins.* 22	*Pygmy rattlesnakes give birth this month.* 23	*Begin preparation for alligator season.* 24	*New moon* 25	*Delicious muscadine grapes ripen in forests throughout the state.* 26
Prepare to take fall pictures. Use ISO 25 film and a polarized filter. 27	28	*Endangered manatees wander into Louisiana waters during late summer.* 29	*Keep all guns and ammunition stored out of children's reach.* 30	31	JULY 1994	SEPTEMBER 1994

JULY 1994

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SEPTEMBER 1994

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Report Outdoor Outlaws ***1-800-442-2511***

NOTES

SEPTEMBER 1994

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OCTOBER 1994

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NOVEMBER 1994

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DECEMBER 1994

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MAY 1995

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JUNE 1995

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JULY 1995

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AUGUST 1995

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